Kyocera EcoLAN 3000E

User's Manual

Network Connectivity for Kyocera Printers

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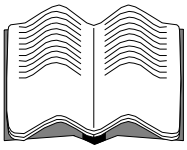

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1

Introduction

The EcoLAN 3000E is a Network Interface Controller that is installed into compatible Kyocera printers to provide Ethernet network connectivity. The EcoLAN 3000E has the following features:

- Automatic selection of 100baseT or 10baseT Ethernet connection.
- Fully transparent AppleTalk printing support for the Macintosh, including support for binary PostScript printing.
- Peer-to-Peer (serverless) discovery and printing from Windows 95 or Windows NT (4.0 or higher) workstations over either IP or IPX protocols, without a Novell file server present.
- Novell NetWare PSERVER on both bindery based and Novell Directory Services (NDS).
- lpr/lpd over TCP/IP for UNIX platforms and Microsoft Windows.
- Raw sockets support over selectable TCP/IP port with filters for selected UNIX environments.
- IP and IPX SNMP support of MIB-2 and DPI proprietary NIC MIB.
- SNMP support of standard and Kyocera private MIBs.
- Flash memory to allow field upgrades, with capability for either IPX/SPX or TCP/IP (FTP) download of executable code.
- Integral HTTP Server to allow monitoring and management of your EcoLAN 3000E from a standard IP Web Browser program.
- Management Access Program (MAP) to allow Windows-based HTML viewing for monitoring and management of your EcoLAN 3000E over IPX.
- FTP printing to allow users to print directly from their IP browser or other FTP client.
- Setup IP address and other parameters with the printer front panel.

1.1 What's in Your Package

The EcoLAN 3000E package contains the following:

- The EcoLAN 3000E Card.
- A printed Quick Configuration Guide.
- A CD ROM containing this manual and the 3000E setup and configuration utilities.

The CD ROM may contain README files containing the latest information about the installation and operation. It is advisable to review the README files when installing the utilities.

The CD also contains the ASN.1 coded SNMP MIB for the Network Interface Card (NIC). This MIB can be loaded into a standard SNMP console to provide SNMP access to all NIC parameters. The MIB is included in this manual in Appendix C, *NIC MIB Definition*.

Instructions and software to perform flash downloads to update the NIC firmware are provided with any update or upgrade package and are not included in this manual.

1.2 Hardware/NOSRequirements

The EcoLAN 3000E hardware and software require the following:

Version of Protocol or NOS	Novell NetWare Version 2.15, 3.1x, 4.x, or 5.x.
	Macintosh System 7 and 8.
	UNIX, Windows, or LAN Server systems supporting lpr over TCP/IP.
	DEC ULTRIX 4.3 or 4.4, DEC OSF/1 2.0 or 3.0, Solaris 1.1.3 or 2.3, (SUN OS 4.1.3 or 5.3), System V Release 4, HP-UX 9.01, IBM AIX 3.2.5, or SCO UNIX 2 for DPI TCP/IP port 10001.
Software	The MAP utility requires Windows 3.1; Windows for Workgroups 3.11; Windows NT 3.5 or later; or Windows 95/ 98.
	AppleTalk printing requires printer PPD appropriate to the printer.
	TCP/IP setup and maintenance may be done with Telnet. Monitoring and maintenance with HTTP requires a suitable internet Web Browser program supporting HTML.
Hardware	Support for 10 megabit or 100 megabit Ethernet networks using 100baseT or 10baseT cables and hardware.
	CD ROM drive on the workstation to enable installation of the 3000E utilities.

2

Hardware Installation

2.1 Supported Kyocera Printer Models

The EcoLAN 3000E is compatible with the FS or LS-600, 680, 800, 1700+, 3700+, 6700, 7000+, 9000 and any other Kyocera printer with the new slide-in interface.

The EcoLAN 3000E is NOT compatible with previous FS/LS-Series models, including, FS/LS-400, 850, 1500/A, 1550/A/+, 1600/A/+, 1700, 3400/A/+, 3500/A, 3600/A/+, 3700, 5500, 6500/+.

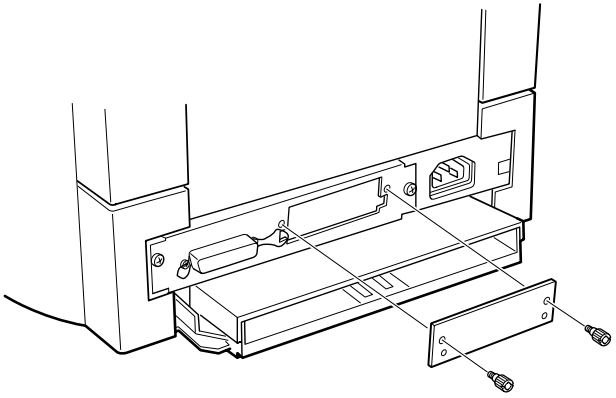
The EcoLAN 3000E is compatible with the FS/LS-7000 with a Software version of 25.05 or later. The Software version is displayed on the printer status page. The FS/LS-7000 also includes an older daughter board style interface in addition to the slide-in interface. The slide-in interface on the FS/LS-7000 may be used for either a network interface card or an optional hard drive. Thus, if the EcoLAN 3000E is installed in the FS/LS-7000, there is no available slot for the optional hard drive.

2.2 EcoLAN 3000E Hardware Installation

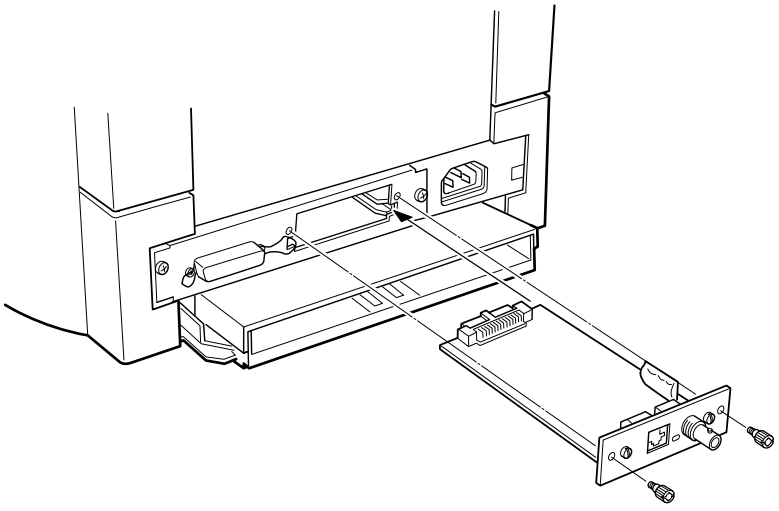
The EcoLAN 3000E is a new slide-in interface board which does not require the removal of the printer's main board for installation. This section includes instructions for installation into 1) the FS-680, and 2) the FS/LS-7000+. These instructions would be similarly applicable to comparable Kyocera printer models with the slide-in interface.

2.2.1 FS-680 or Comparable Model Installation

1. Remove the two screws securing the interface slot cover on the rear panel of the printer and discard the interface slot cover.

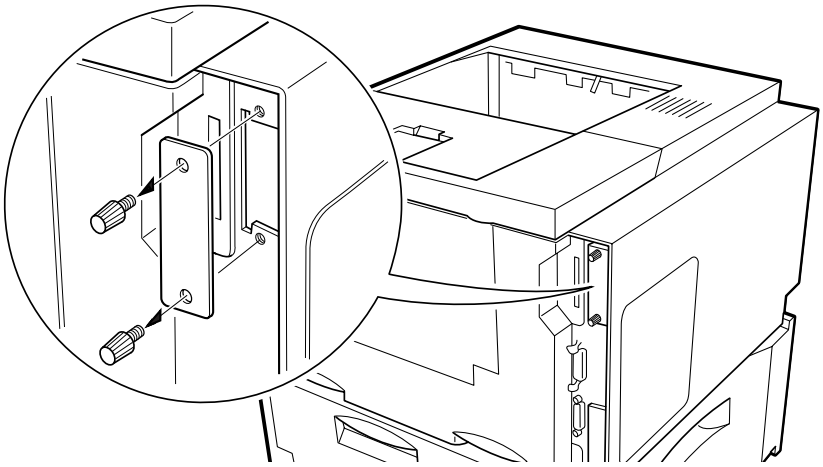


2. Align the edges of the 3000E board with the rails in the interface slot and slide the 3000E into the printer. Secure with the two screws removed in Step 1.

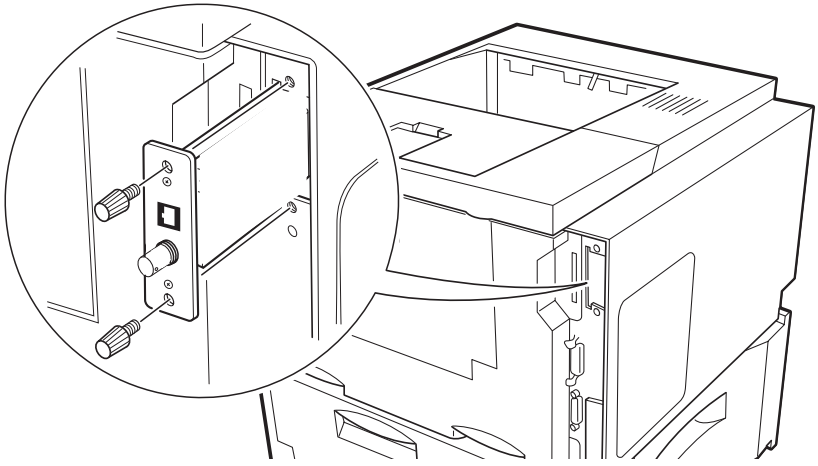


2.2.2 FS/LS-7000+ or Comparable Model Installation

1. Remove the two screws securing the upper hard drive/interface slot cover on the side panel of the printer and discard the slot cover.



2. Align the edges of the 3000E board with the rails in the interface slot and slide the 3000E into the printer. Secure with the two screws removed in Step 1.



2.3 Connect the network cabling and turn on the printer.

Connect the proper cable to the interface. Turn the printer on. Follow the appropriate setup instructions for your specific operating system later in this manual.

3

Browser Based Management

The EcoLAN 3000E can be managed over TCP/IP with a standard web browser, such as Netscape Navigator or over IPX using the Management Access Program (MAP). MAP is a Windows-based HTML viewer which provides management capabilities over IPX using a very similar interface to a standard web browser.

Either method of access to the 3000E provides the following capabilities:

- Enable, disable, and configure your network protocols for the EcoLAN 3000E.
- Reset the EcoLAN 3000E remotely to either clear an error condition, or return the print server to its factory default settings.
- Troubleshoot problems in the EcoLAN 3000E.
- Enable or disable the status sheet printout.
- Access a context-sensitive help menu that fully explains how to use each feature.

Note: To be able to change parameter values with the Management Access Program or a web browser, you must know the EcoLAN 3000E management password. The factory default password is "**sysadm**". This password is case sensitive. The default password may be changed with MAP or with a web browser.

3.1 The Management Access Program (MAP)

MAP is a Windows-based HTML viewer which provides management capabilities over IPX using a very similar interface to a standard web browser. MAP may be used with Windows 3.1 or 3.11, Windows 95/98, or Windows NT 3.51 or later. The Windows workstation running MAP must have the IPX protocol enabled. (Instructions for installing the IPX protocol in Windows 95/98 or NT 4.0 are included in section 5.4.2.2.)

3.1.1 How to Install MAP in Windows

The MAP setup program may be launched from the same Acrobat .PDF files which were used to access this manual or may be run directly from the CD ROM using the following procedure:

1. Insert the CD ROM included with the EcoLAN 3000E.
2. These instructions assume D is the drive letter of your CD ROM. Substitute the appropriate drive letter if necessary for your system.
   - For Windows 95 or NT 4.0, click the **Start** button, select **Run**, and type: **D:\MAP\SETUP.EXE**
   - For Windows 3.1, Windows for Workgroups 3.11, or Windows NT 3.51, from Program Manager under **File**, select **Run**, and type: **D:\MAP\SETUP.EXE**
3. Follow the setup program prompts.

3.1.2 Using MAP

Double click on the MAP icon to start the program.

Click on the arrow next to the Server dialog for the list of available EcoLAN cards. The program will display the list of EcoLAN 3000E units designated by their SAP identification (KYO followed by the unit's six digit serial number). Select the 3000E you want to access. The program will setup a link to the 3000E and display its home page.

To display the EcoLAN 3000E print server name in addition to the SAP ID for all units:

1. Select **Show All** under the **Options** menu.

   Because this operation requires that each EcoLAN 3000E be accessed, it may take a long time to complete if there are many EcoLAN 3000E units on the network.

3.1.3 Extensive On-Line Help

When using the MAP program, there is an extensive on-line help system which fully explains all of the program's features and menus. The on-line help is context-sensitive.

3.2 Management with an IP Web Browser

Once an IP address has been assigned to the EcoLAN 3000E, an IP web browser, such as Netscape Navigator or Microsoft Internet Explorer, may be used to access the EcoLAN 3000E for monitoring and maintenance.

For information on assigning an IP address to the 3000E, see Chapter 5 to assign from Windows, see Chapter 6 to assign from a Macintosh, see Chapter 7 to assign from Unix, or see Chapter 8 to assign from the front panel.

3.2.1 Accessing and Configuring the 3000E from the Browser

An individual EcoLAN 3000E may be accessed by entering its URL in the browser. Alternatively, an automatic IP unit discovery utility may be installed which will display a list of all active EcoLAN 3000E units. For more information on this utility see section 3.3 Automatic IP Unit Discovery.

Use the following procedure to access the 3000E by entering its URL in the browser:

1. Open up your browser by clicking on its icon.
2. For the URL, type in the IP address of the EcoLAN 3000E. For example, if the 3000E IP address is 202.26.7.124, then type: `http://202.26.7.124` to access the 3000E home page. If you have problems connecting, make sure you are using the correct IP address.
3. The 3000E home page contains links to Kyocera printer company sites around the world where the latest Kyocera printer information, driver updates, and utilities may be obtained.
4. To perform management of the 3000E, click on the 3000E Configuration link. This provides a complete list of configuration options, such as protocol setup, status page configuration, etc. Choose the desired option for configuration.

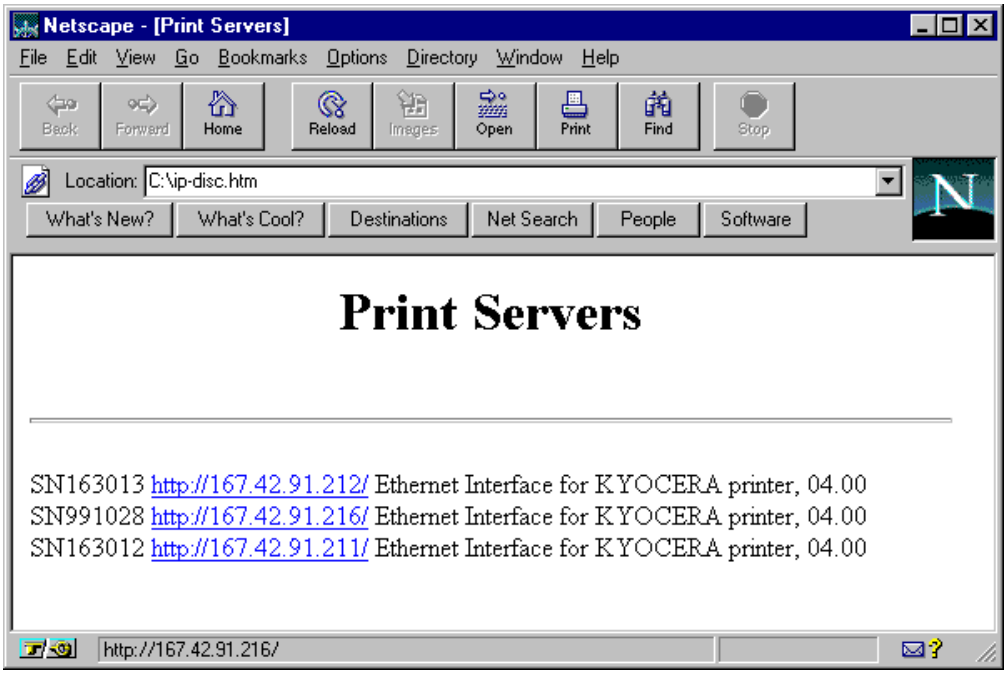
Note: To be able to change parameter values with the Management Access Program or a web browser, you must know the EcoLAN 3000E management password. The factory default password is "**sysadm**". This password is case sensitive. The default password may be changed with MAP or with a web browser.

3.2.2 Extensive On-Line Help

The HTTP Server includes help text for each screen. Just click on the word "Help" on the HTTP Server screen.

3.3 Automatic IP Unit Discovery

The IP Unit Discovery utility for Windows offers Windows 95/98 and NT 4.0 users an alternative to manually typing the 3000E IP address as described in section 3.2.1. This utility opens the browser and displays a list of all active EcoLAN 3000E units (and all 2000E units and 1000E units with 4.06 or later firmware) as shown in the following screen shot:


Netscape - [Print Servers]
File Edit View Go Bookmarks Options Directory Window Help
Back Forward Home Reload Images Open Print Find Stop
Location: C:\ip-disc.htm
What's New? What's Cool? Destinations Net Search People Software
Print Servers
SN163013 http://167.42.91.212/ Ethernet Interface for KYOCERA printer, 04.00
SN991028 http://167.42.91.216/ Ethernet Interface for KYOCERA printer, 04.00
SN163012 http://167.42.91.211/ Ethernet Interface for KYOCERA printer, 04.00
http://167.42.91.216/

3.3.1 Installing and Using the IP Unit Discovery Utility

IP Unit Discovery is supported for Windows 95/98 and NT 4.0. The IP Unit Discovery setup program may be launched from the same Acrobat .PDF files which were used to access this manual or may be run directly from the CD ROM using the following procedure:

1. Insert the CD ROM included with the EcoLAN 3000E.
2. For Windows 95 or NT 4.0, click the **Start** button, select **Run**, and type: **D:\IP-DISC\SETUP.EXE** (This assumes D is the drive letter of your CD ROM. Substitute the appropriate drive letter if necessary for your system.)
3. Follow the setup program prompts.

The setup program creates the EcoLAN program group and installs two icons. Click the IP Unit Discovery icon to launch the utility. The Configure IP Unit Discovery icon allows configuring the number of hops to search for network printers. A larger setting for hops searches more remote networks, which takes longer and generates more network traffic. The default setting of 2 will display all printers that can be found by going through no more than 2 routers. A setting of 0 will search only the local network segment.

Note: If IP printers on a remote network segment can be pinged but are not displayed with the IP Unit Discovery and your IP Discovery setting for hops is not 0, your router may not be forwarding SNMP broadcasts.

4

NetWare Configuration

Use this chapter if you will be printing from a Novell NetWare NOS. This chapter is divided into the following sections:

- **Configuring NetWare 2.15 and 3.x** describes how to configure the EcoLAN 3000E for use with Versions 2.15 or 3.x. Use PCONSOLE to set up the print server function.
- **Configuring NetWare 4.x in Bindery Emulation** describes how to configure the EcoLAN 3000E for use with Version 4.x — Bindery Services. Use PCONSOLE to set up the print server function.
- **Configuring NetWare Directory Services** describes how to configure the EcoLAN 3000E for use with Version 4.x or 5.x Directory Services. Use NWADMIN to set up the print server function.
- **EcoLAN 3000E Setup Parameters** describes the parameters accessible via MAP or an IP Browser used to configure the EcoLAN 3000E for NetWare.
- **Using NetWare Utilities** explains how to use standard Novell NetWare utilities to make changes to the configuration of the EcoLAN 3000E function.

4.1 Configuring NetWare 2.15 and 3.1x

Before configuring NetWare, you must determine if the EcoLAN 3000E has its desired name. If you change the name, use MAP or an IP Browser to assign the same name to the 3000E.

The following steps are the general procedure for configuring the EcoLAN 3000E. You must have supervisor privileges to do this configuration. These steps are covered in detail in the following paragraphs:

1. Start PCONSOLE and select the file server you want to use.
2. Create the print queues.
3. Specify the <*EcoLAN 3000E*> as a print server.
4. Configure the EcoLAN 3000E and printer.

5. Assign the print queues.
6. Set up the NOTIFY options.
7. Repeat the procedure for other file servers.

When you are finished, turn the printer off and on again. The printer creates a status report that indicates the file servers to which the unit is attached and the queues which it services.

Before you begin:

- Verify that you have supervisor privileges on the file servers on which the EcoLAN 3000E print server is to be entered.
- Verify that your version of PCONSOLE is later than 1.0.

4.1.1 Start PCONSOLE and Select File Server

Follow these steps to start PCONSOLE:

1. Log in to the network, type **PCONSOLE** and press **ENTER**.
2. Choose **Change Current File Server** from the **Available Options** menu. A list of file servers is displayed.
3. Select the file server on which you want to install the print server and press **ENTER**. If the name of the file server you want is not displayed, press the **INS** key to get a list of file servers.
4. Log in to the file server.
5. Press the **ESC** key to return to the Available Options menu.

4.1.2 Create Print Queues

The print server must be assigned to at least one print queue on the file server.

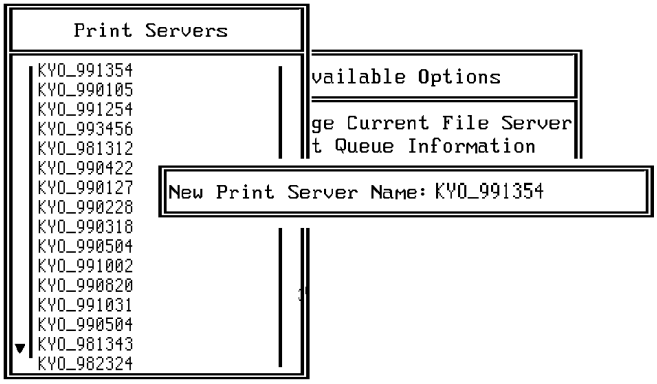
- If the print queue that you want the *<EcoLAN 3000E>* to service already exists, and you know the name of this queue, go to *4.1.3 Enter the Print Server Name* .
- If you do not know the name of the queue, or it does not exist, use the following procedure:

1. Choose **Print Queue Information** from the **Available Options** menu, and press **ENTER**. A list of existing queues is displayed.
2. To create a new queue, press **INS**. Enter the name of the queue and press **ENTER**. You do not need to enter any more information at this time.
3. Press the **ESC** key to return to the **Available Options** menu.

4.1.3 Enter the Print Server Name

A print server takes the print jobs from queues and sends them to the printer. Use this procedure to specify the name of the print server:

1. Choose **Print Server Information** from the **Available Options** menu, and press **ENTER**. A list of existing print servers is displayed.



2. Press the **INS** key. The New Print Server Name box is displayed.

   Type the name of the print server into the entry box. The Novell print server name is printed under Novell NetWare information on the status sheet.

Note: If desired, this name can be changed using MAP or Web Browser utilities. The screen example shows how to enter the print server name for a print server with a serial number of KYO_991354.

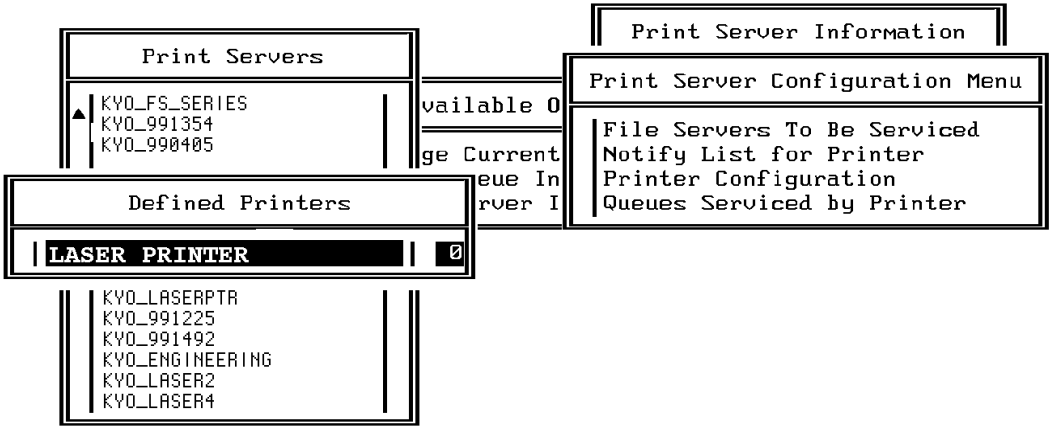
---

3. Press **ENTER** to add the print server name to the Print Servers list.

4.1.4 Configure the Print Server

Use the following procedures to configure the Print Server's function:

1. Choose the print server name from the **Print Servers** list and press **ENTER**. The **Print Server** Information menu appears.
2. Choose **Print Server Configuration** from the menu and press **ENTER**.
3. Choose **Printer Configuration** from the menu and press **ENTER**. The **Configured Printers** menu appears. Since this is a new Print Server entry, all printers are labeled "Not Installed".
4. Choose the printer and press **ENTER**. The **Printer 0 Configuration** screen appears with a title of Printer 0.
5. If you choose to, change default in the Name field on this form to something that helps you identify the printer, for example, LASER_PRINTER. The print server uses this name in its message back to the users on the Notify list. Select **Name**, enter a name, and then press **ENTER**.
6. Select **Type** and press **ENTER**. A list of printer types is displayed. Choose **Remote**
   Other/Unknown and press **ENTER**. This creates default entries in the other fields. These defaults are usually optimal, so do not change them without specific knowledge of the effects.
7. Press the **ESC** key. At the prompt, choose to save your changes.
8. Press the **ESC** key to return to the **Print Server Configuration** menu.



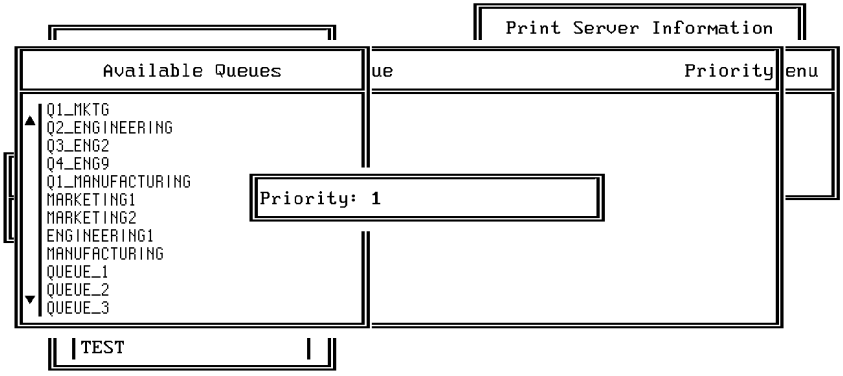
4.1.5 Assign Print Queues to the Printer

When you assign queues to the defined printer, you authorize the print server to service these queues.

Note: Do not assign the same queue to two different print servers. If a queue is assigned to multiple print servers, print jobs may not go to the intended printer.

---

1. Choose **Queues Serviced By Printer** from the Print Server Configuration menu.
2. Select the printer name from the list of defined printers.
3. Press **INS** to display the **Available Queue**s list for the printer.
4. Select the queue you want and then assign a priority level from 1 to 10. It is recommended that you accept the default priority level. Press **ENTER**. The queue appears on the list for the printer.



Press the **INS** key again to assign additional queues.

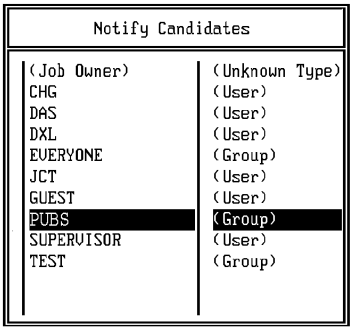
5. When you finish assigning queues, press the **ESC** key and then save your changes. Continue to press the **ESC** key to return to the Print Server Configuration menu. If you want to set Notify options, go to Section. 4.1.6. If you are finished, continue to press the **ESC** key and then save your changes.

4.1.6 Set Up Notify Options for the Printer *(Optional)*

To enable the print server to notify users or user groups if a problem occurs with the printer, set up the Notify options. The print server supports the enhanced NOTIFY options for printers, including informing users when the printer:

- Is off-line, jammed, opened, or out of paper
- Requires a manual paper feed or a form change
- Has had an engine failure

1. Choose **Notify List for Printer** on the Print Server Configuration menu.
2. Select the printer from the **Defined Printers** list. The screen appears (which is blank for an initial installation). Press **INS** to view a list of **Notify Candidates**.
3.



4. Set the **First** and **Next** intervals in the **Notify Intervals** screen. It is recommended that you use the defaults. The **First** interval is the number of seconds the network waits before it notifies candidates about a print job problem. The **Next** interval specifies how often in seconds candidates are notified. Enter a number for each interval and press **ENTER**.
5. Press the **ESC** key and then choose **Save Changes**. Press the **ESC** key at each screen until you reach the Print Server Configuration menu. If you have finished the configuration, press the **ESC** key and then save the changes.

4.1.7 Installing the EcoLAN 3000E on Multiple File Servers

To install the EcoLAN 3000E on more than one file server, perform the procedures described in Sections 4.1.1 through 4.1.6 for each file server. You must use the same name and password for the print server (or no password) on all file servers. You set the password for the EcoLAN 3000E using the MAP program (refer to *4.3 Configuring the EcoLAN 3000E in NetWare Directory Services*). If you use a password, specify it on each file server using the **Change Password** option on the Print Server Information menu of the PCONSOLE utility.

When the EcoLAN 3000E comes up, it automatically searches for and attaches to the file servers that are no more than four hops and have no more than eight ticks propagation delay. For extremely large or complex networks, this allows a bounded search time on start-up. If the print server must attach to file servers beyond this range, or, if you wish to accelerate start-up by eliminating the need to search all file servers in the four hops/eight ticks radius, the file servers with which the print server is to operate may be entered into the Print Server Configuration of a "*primary*" file server. The primary file server can be any file server within the four hops/eight ticks propagation time limits, but ideally is as close as possible to the print server. Once the print server locates the primary file server and the list of file servers to be serviced, the automatic search is dropped and the print server will go directly to those file servers listed (and to no others).

4.1.8 Primary File Server

To use the primary file server option, use the following procedure on a file server close to the printer:

1. List the file servers to be serviced by the primary file server by selecting **File Server To Be Serviced** option from the **Print Server Configuration Menu**.
2. Press the **Insert** key to display the **Available File Servers** list.
3. Select the name if each file server to be serviced and press **ENTER** to add it to the **File Servers To Be Serviced** list.
4. When the list is complete, press the **ESC** key to return to the menu.
5. Install the EcoLAN 3000E on each of the primary file servers.

4.1.9 Preferred Bindery File Server

The MAP or web browser utilities allow you to identify a "preferred" file server, to be identified within the EcoLAN 3000E itself. If a preferred bindery file server is listed, the EcoLAN 3000E will attach to this identified file server instead of initiating the automatic search. If the preferred bindery file server is also a primary file server (for example, has file servers listed under file servers to be serviced), the EcoLAN 3000E will connect directly to these file servers. See Chapter 3 for information on using MAP or a web browser.

Note: The Preferred Bindery File Server is only applicable to bindery-based queues. This entry should be left blank unless bindery-based queues will be serviced on the Preferred Bindery File Server.

4.2 Configuring NetWare 4.x — Bindery Emulation

Novell's NetWare 4.x can operate in two modes — NetWare Directory Services (NDS) and Bindery Services Emulation. For Directory Services, see *4.3 Configuring the EcoLAN 3000E in NetWare Directory Services* . These services run simultaneously and transparently to each other. The EcoLAN 3000E may be configured to operate with Bindery Services mode only (this section), or to operate under NDS (*4.3 Configuring the EcoLAN 3000E in NetWare Directory Services*). When configured under NDS, the EcoLAN 3000E will also service older file servers operating in bindery mode.

Note: If the EcoLAN 3000E is not properly set up for NDS and the Bindery Services mode is not running, the EcoLAN 3000E can not find its file servers, and the status page indicates the Novell NetWare protocol is not active.

4.2.1 Confirm Bindery Context

Before installing the EcoLAN 3000E on a Novell NetWare 4.x server in Bindery Emulation mode, check that the server has a Bindery Context (name for the server under Bindery Services mode). If the server does not have Bindery Context, it may be preferable to install in NDS mode. If the EcoLAN 3000E must be installed in the Bindery Emulation mode, the server must have Bindery Context. Perform the following steps to confirm the server has Bindery Context:

1. Go to the 4.x server and at the system console type: **load install**
2. Select **Maintenance/Selective Install** from the menu.
3. Select **NCF Files Options** from the menu.
4. Select **Edit AUTOEXEC.NCF** from the menu.
5. Search the file to see if you have a statement similar to the following included:
   SET BINDERY CONTEXT=0U=ENG

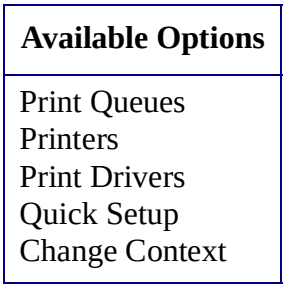
   Where **=0U=ENG** is an example of a name for the file server context. Use your own file server context in place of **=0U=ENG**.
6. At the console prompt, type the **SET BINDERY CONTEXT** statement that you entered in the autoexec.ncf file.

Note: The command at the console prompt takes effect immediately. The definition in the file takes effect when the server is shut down and then restarted.

4.2.2 Configure in Bindery Mode with PCONSOLE

Once you confirm the server has Bindery Context, use the following procedures to configure the EcoLAN 3000E.

1. Log into the network as ADMIN.
2. Type **PCONSOLE** and press **ENTER**. The following screen appears.



3. When the **Available Options** menu appears, press the **F4** key (for the Bindery Mode).

Note: If you receive a message asking you to login to a server with Bindery connections, the server you are attached to does not have Bindery Mode enabled. Follow the procedures in *4.2.1 Confirm Bindery Context* or log onto a server with Bindery Services activated.

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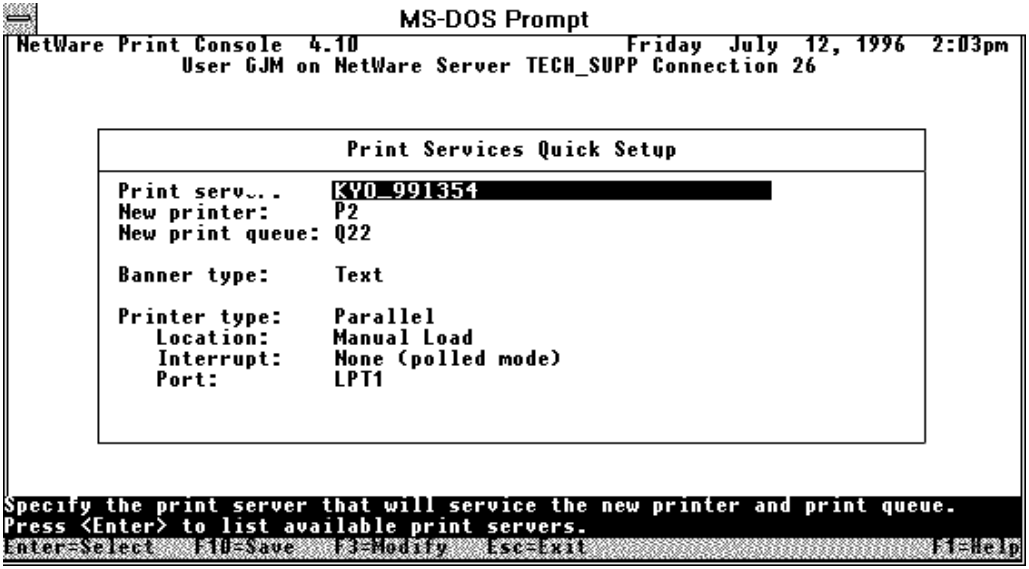
4. From the **Available Options** screen, select **Quick Setup** and press **ENTER**.

   Use **Quick Setup** to connect your EcoLAN 3000E, print queue and printer correctly. You can modify these later if you need to.


MS-DOS Prompt
NetWare Print Console 4.10 Friday July 12, 1996 2:03pm
User GJM on NetWare Server TECH_SUPP Connection 26
Print Services Quick Setup
Print serv... KYO_991354
New printer: P2
New print queue: Q22
Banner type: Text
Printer type: Parallel
Location: Manual Load
Interrupt: None (polled mode)
Port: LPT1
Specify the print server that will service the new printer and print queue.
Press <Enter> to list available print servers.
Enter=Select F10=Save F3=Modify Esc=Exit F1=Help

5. Select **Print server** and press the **F3** key to modify the entry.
6. Enter the name of the print server in the **Print server** field and press **ENTER**.

Note: The print server name is printed under the Novell Network Information on the Status and Configuration report. The factory default name consists KYO, an underscore, and the serial number of the unit.

---

7. Press the **ESC** key to move to the **New printer** field. Enter a name and press **ENTER**.
8. Press the **ESC** key to move to the **New print queue** field. Enter a name and press **ENTER**.
9. Press the **ESC** key to move to the **Printer type** field and press **ENTER**. From the list of printer types, select **Other/Unknown** and press **ENTER**.
10. When you are finished, press the **F10** key to save the configuration.

    Repeat steps 5 through 10 for each file server that the printer server services.
11. To view, add, delete, or modify print servers or queues after initial setup, select either **Print Queues** or **Print Servers** on the **Available Options** screen.

4.3 Configuring the EcoLAN 3000E in NetWare Directory Services

NetWare Directory Services (NDS) offers a different, more advanced approach to network management than previous NetWare versions. Generally, it stores and tracks all network objects. As a rule, all 4.*x* and 5.x servers must have NDS loaded in order to function. In this way, every NetWare 4.*x* server is a Directory server, because it services named Directory objects such as printers, print servers and print queues. With the appropriate privileges, you can create a print server *object*, which, once configured in its *context* (or location) on the network, eliminates the cumbersome setup of print servers on *every* network server. NDS provides true *enterprise* networking based on a shared network database rather than a individually defined physical sites. The result is greatly improved print server setup and management.

The Directory Information Base (DIB) is used to store information about servers and services, users, printers, gateways, etc. It is a distributed database, allowing access to data anywhere on the network wherever it is stored. Pre-4.*x* NetWare versions provide the same data found in the DIB but the data is stored in the NetWare Bindery. The DIB was designed with more flexible access, more specific security, and, since it is distributed, it was designed to be partitioned. The Directory uses an object-oriented structure rather than the flat-file structure of the Bindery, and offers network-oriented access, rather than server-oriented access found in the Bindery.

The Directory is backward-compatible with the NetWare Bindery through Bindery emulation mode. This section describes Print Server Operation with a 4.x NetWare system in bindery emulation mode. When Bindery emulation is enabled, Directory Services will accept Bindery requests and respond just as if a Bindery existed on the NetWare server being accessed. Be aware that information obtained from the Bindery query may not be stored in the server since the Directory is a partitioned and distributed database. Even though the NetWare 4.*x* server is not operating from a Bindery, the applications making Bindery requests will not know the difference.

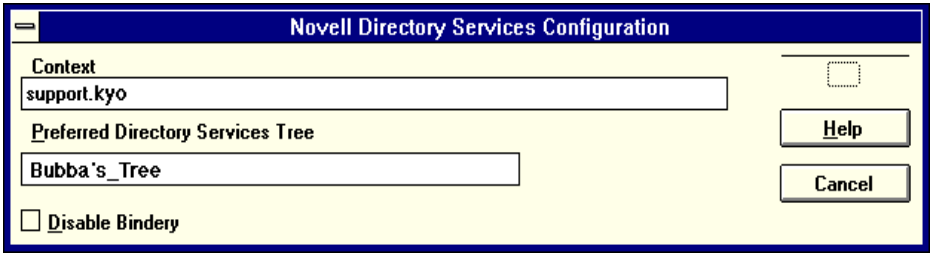
You may use NWADMIN to configure the printer in NDS. Prior to printing, NDS must be set up as follows and the EcoLAN 3000E must be set up with NDS Context and Tree. See Section 4.4. The steps below describe the use of NWADMIN configuration to create printer, print server, and print queue objects. Then, you will assign, or associate those objects with each other. If you wish to keep Bindery resources on any server, you can under NetWare 4.*x* if you declare a SET statement in your **AUTOEXEC.NCF** file.

NWAdmin Quick Setup

NWAdmin offers a Print Services Quick Setup option on the Tools menu. Instructions for Quick Setup are included on the printed Quick Configuration Guide and the Quick Configuration Guide PDF file on the CD with this User's Manual. The NWAdmin procedures in this manual do not use the Quick Setup but rather create each Print Services object separately, allowing greater flexibility in configuration.

4.3.1 Create Printer Object

1. Click on the NWADMIN icon in the NetWare Tools group in Windows. The NetWare Administrator window will appear. To bring up your Directory Tree, open a Browser window by clicking on the **Tools** menu item and, the **Browse** item.



2. Highlight the Organizational Unit or Organization where you want to create the print service in the Directory Tree, select the **Object** item from the main menu and choose **Create...**

Note: If you wish, you can create objects another way in NWADMIN by: selecting an Organizational Unit, clicking on the *right* mouse button (which produces a pop-up menu), and clicking on **Create...** use the *left* mouse button to bring up the **New Object** window). From this point, the procedure continues as described.

---

3. When the **New Object** window appears, scroll down the **Class of New Object** icon list, select the Printer icon and click on the **OK** button.

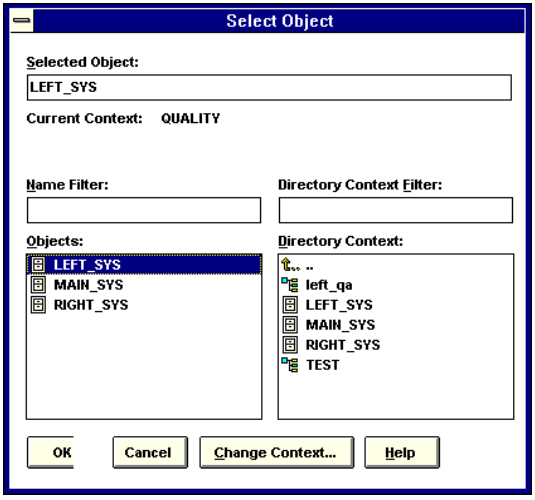
4. When the **Create Printer** window appears, type a value in the **Printer Name** field and click on the **Create** button.

4.3.2 Create Print Server Object

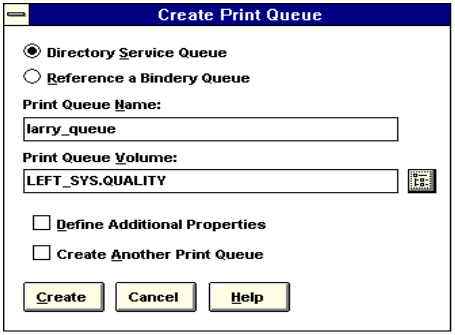
1. Again, highlight the Organizational Unit, select the **Object** item from the menu and choose **Create...**
2. At the **New Object** window, scroll down the **Class of New Object** icon list, select the Print Server icon, and click on the **OK** button.
3. At the **Create Print Server** window, type a value in the **Print Server Name** field and click on the **Create** button.

4.3.3 Create Print Queue Object

1. Once again, highlight the Organizational Unit, select the **Object** item from the menu and choose **Create**.
2. At the **New Object** window, scroll down the **Class of New Object** icon list, select the Print Queue icon, and click on the **OK** button.
3. At the **Create Print Queue** screen, click on the **Directory Service Queue** button, then type in values for **Print Queue Name** and **Print Queue Volume** and click on the **Create** button. If you don't know the **Print Queue Volume** name (the hard drive you will be accessing), click on the icon to the right of the volume field. The **Select Object** window will appear with the volume listed in **Objects**. If the volume is *not* listed, scroll the **Directory Context** items until you find the volume where you want the queue to reside.

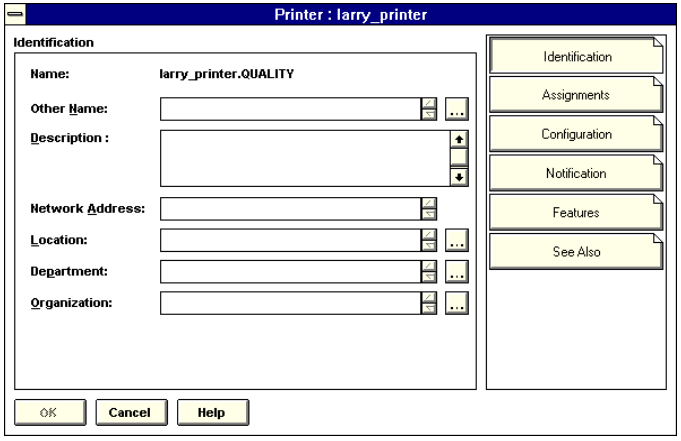


Click on the object (hard drive) of your choice and it will appear in the **Selected Object:** field. Click on the **OK** button. The full volume will now appear in the **Print Queue Volume** field. Finally, click on the **Create** button.

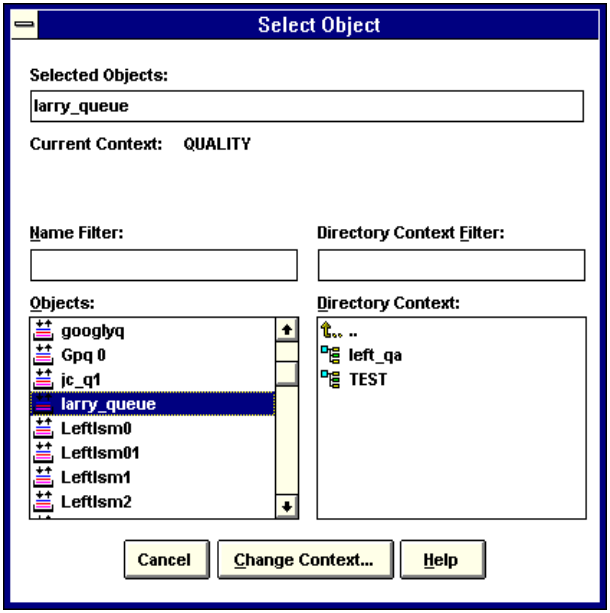


4.3.4 Assign Printer Object

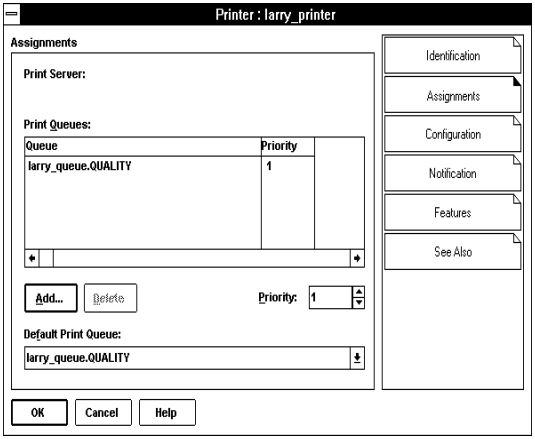
1. Go to the **Directory Tree**. Double click on the printer object just created and bring up the **Printer** window. See below. Find the **Assignments** button on the right-side of the window and click on the **Add** button.



2. When the **Select Object** window appears, find the print queue object just created among the choices listed in the **Objects** box and select it.

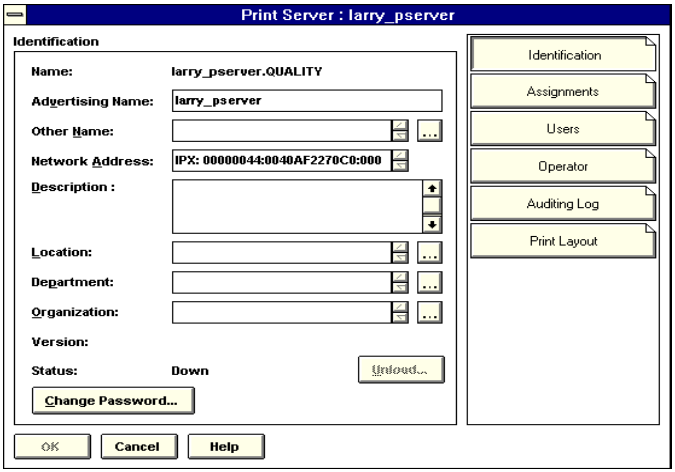


Click on the **OK** button and the print queue just created is added to the **Print Queues:** box in the **Printer:** window. Click on the **OK** button again.

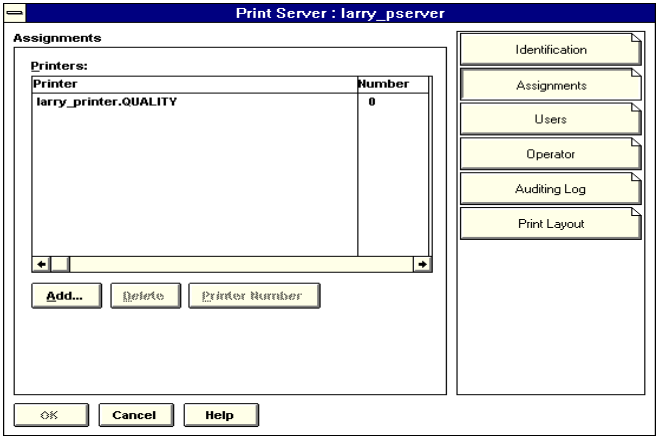


4.3.5 Assign Print Server Object

1. At the **Directory Tree**, double click on the print server object you just created and bring up the **Print Server** window.

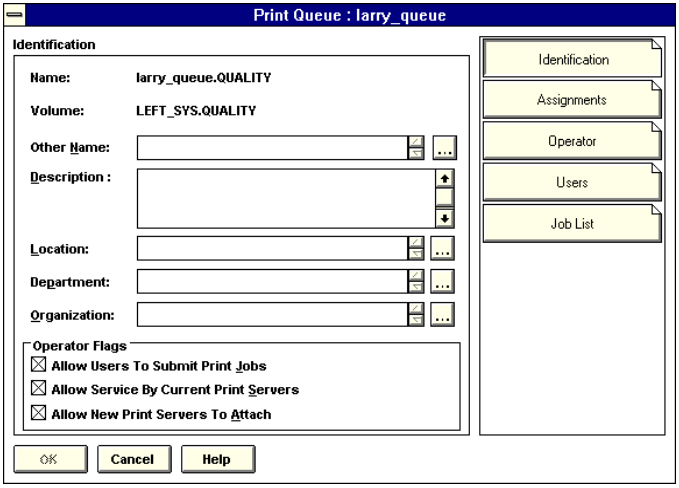


2. At the **Print Server:** window, click on the **Assignments** button and **Add** button to bring up the **Select Object** window. Select the printer object just created from the **Objects:** box and click on the **OK** button. Now the printer (with its context) appears in the **Printers:** box of the **Print Server** window. Click on the **OK** button.

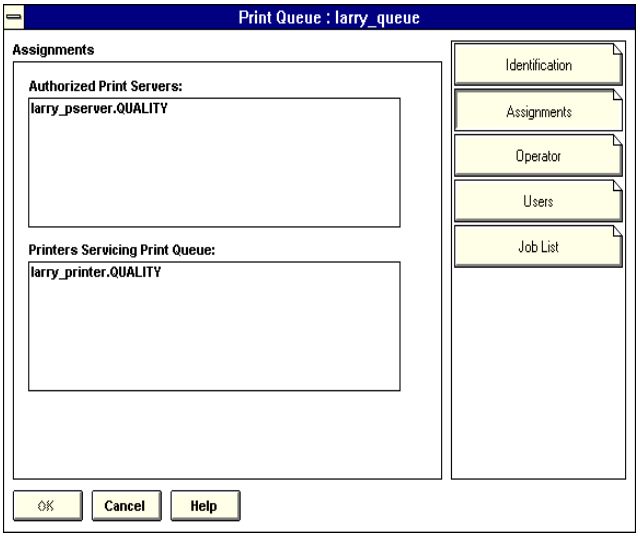


4.3.6 Check Assignments

At the **Directory Tree**, double click on the **Print Queue** object you just created. At the **Print Queue** window, click on the **Assignments** button.



If you configured the print queue and printer correctly they will appear in the proper boxes on the **Print Queue** window. Press the **Cancel** button.



4.3.7 Set Up and Reset the Printer

NWADMIN configuration is complete. Before you can begin printing, though, be sure to perform the EcoLAN 3000E Configuration in the following section and reset (power cycle) the printer.

4.4 EcoLAN 3000E Configuration

The MAP utility or an IP web browser must be used to define the context of the 3000E. It is also used to change the Print Server name, set in a password, modify scan and frame search parameters, and set in bindery-mode specific values.

Use the MAP utility or IP Web Browser (refer to Chapter 3) to access the Setup pages of the EcoLAN 3000E. Once you have accessed the Network Administration pages or the Main Menu, do the following:

1. Select **Setup NetWare** under **Protocols**.
2. Click on **Enable NetWare**. If it is not selected, the NetWare protocols will not come up, the EcoLAN 3000E will not appear as an advertised device, and the NIC will not be accessible using IPX SNMP.
3. The default name for the NetWare Print Server is KYO_123456, where *123456* is the serial number of the EcoLAN 3000E. This is also the name of the printer in peer-to-peer mode. If you want to change the default Print Server name, type this name in the **Print Server Name** space. This name must match the Print Server name previously defined in the PCONSOLE or NWADMIN setup.
4. If you want the EcoLAN 3000E to login with a password, this password may be entered in the **Print Server Password** field, and again in the **Password Retype** field. If a password is used, this password must be the same password for all bindery-based and NDS-based Print Server entries.
5. Enter the name of a preferred bindery-based file server in the **Preferred Bindery File Server** field. The Preferred Bindery File Server entry is significant only for bindery or bindery emulation based operations. Refer to *4.1.9 Preferred File Servers* for the significance of a Preferred File Server. The Print Server must be configured on the preferred file server. Incorrect setup of a Preferred File Server can interfere with NetWare printing. For NDS printing leave Preferred Bindery File Server blank.
6. If the Print Server is to be operated under Novell Directory Services, type in a **Preferred NDS Context** entry. Be sure to give the *whole* context, whether *typeful* or *typeless*, and do not begin your context path with a leading period (**.**). A *typeful* context name example is:

   ou=sales.o=acme

   A *typeless* context name example is:

   sales.acme

7. If there are multiple NDS trees on the network, then enter the name of the **Preferred NDS Tree** where the 3000E print objects are defined.
8. In the default mode, the Print Server scans each queue which it is to service once per second. If you prefer a longer scan rate, you may enter the time between scans in seconds in the **Print Queue Scan Rate** field.
9. The EcoLAN 3000E will normally monitor the network to determine which frame type is being used for Novell. When it recognizes a type, it will assume the same frame type. Once it selects a frame type, the EcoLAN 3000E will only operate over that Novell frame type. Monitoring normally starts looking for IEEE 802.3, then IEEE 802.2, then Ethernet II, then 802.3 SNAP, etc. If your network is using multiple frame types for Novell, you should bias the frame search to the desired type by setting the button next to the designation under **Ethernet Frame Type**.
10. You can **Disable Bindery** mode on the Print Server if are operating in NDS mode only. To do so, click on that box. If you disable Bindery, the EcoLAN 3000E will not support Print Servers on a Bindery file server.
11. Once you have selected all desired settings and entered the desired NetWare information, you may cause this information to be entered in the EcoLAN 3000E NV RAM by clicking on **Accept Settings**. As with all value changes, if you have not entered the EcoLAN 3000E Management Password before, you must enter it in the appropriate space before clicking on **Accept Settings**. The factory default password is "**sysadm**". This password is case sensitive.
12. Entered values do not take effect until the EcoLAN 3000E is reset or power cycled. You may reset from MAP or the Web Browser by returning to the Home or Network Administration page, and click on **Reset** under **System**. Now click on **Reset Unit**. Alternatively, you may power cycle the printer. The new NetWare values should now be in effect.

4.5 Using the Novell PCONSOLE Utility

This section explains how to use the PCONSOLE utility to perform the following tasks:

- Attach and select a file server
- Select or delete queues for the print server
- Set-up the Notify function

See the *NetWare Print Server Manual* for detailed information on this utility.

Note: You must have Supervisor privileges to perform many PCONSOLE operations.

4.5.1 Changing the File Server

You can specify a file server as the current one. To change the file server, use the following procedures:

1. Log into the current file server and start the PCONSOLE utility.
2. Select **Change Current File Server** from the **Available Options** menu.
3. Press the **Insert** key to display the available file servers.
4. Select the file server you want as the current one and press **ENTER**.
5. Enter your username and press **ENTER**. If the username requires a password, the **Password** screen is displayed. Enter the password and press **ENTER**.
6. Select **Change Current File Server** from the **Available Options** menu. A list of the attached file servers is displayed.
7. Select the current file server from the **File Server/Username** screen.

4.5.2 Changing Print Queues

When you print a file, your system sends the file to a print queue. The print server assigned to that queue extracts the print job and sends it to the assigned printer. If a print server is servicing queues on multiple file servers, you must assign queues to the printer on each file server. To change the print queues, use the following procedures:

1. Start the PCONSOLE utility.
2. Select **Print Server Information** from the **Available Options** menu.
3. Select the print server from the list.
4. Select **Print Server Configuration** from the menu.
5. Select **Queues Serviced by Printer** from the menu.
6. Select a printer from the **Defined Printers** list.
7. Press **INS** at the **File Server/Queue/Priority** screen. The **Available Queues** list appears.
8. Select a queue from the list.
9. Press **ENTER** at the **Priority** screen to leave the priority setting at 1.

   The highest priority queue is 1; 10 is the last. To change the priority of a queue, press **ENTER** at the **File Server/Queue/Priority** screen to display the **Priority** setting screen. Press the back-arrow key to delete the current setting. Type a new number from 1 to 10 and press **ENTER**.

   Repeat steps 7, 8, and 9 to assign additional queues to the printer.
10. Press the **ESC** key and save all changes.

4.5.3 How to Set Up Notify

You can specify users or groups of users that are notified if a problem occurs when a print job is sent to the printer. If the print server is servicing queues on multiple file servers, you must set up a NOTIFY list for each file server. To set up NOTIFY, use the following procedures:

1. Start the PCONSOLE utility.
2. Select **Print Server Information** from the **Available Options** menu.
3. Select the print server from the menu.
4. Select **Print Server Configuration** from the menu.
5. Select **Notify List for Printer** from the menu.
6. Select the printer from the **Defined Printers** menu.
7. Press the **ESC** key at the **File Server/Notify Name/Notify Type/First/Next** screen. The **Notify Candidates** screen appears.
8. Select the user or user group from the **Notify Candidates** screen. The **Notify Intervals** screen displays.
9. Set the **First** and **Next** intervals for notifying users about printer problems. The **First** interval is the number of seconds the network waits before it notifies users about a print job problem. The **Next** interval specifies how often in seconds users are notified. Enter a number for each interval and press **ENTER**.
10. Press the **ESC** key and save all changes.
11. Press the **ESC** key until you see the prompt to exit PCONSOLE. Select **Yes** and then press **ENTER**.

5

Windows Configuration

Windows encompasses a wide range of client versions; from Windows 3.1 to Windows NT 4.0, and thus a wide range of printing capabilities. This chapter is divided into sections for each version of Windows. Please refer to the appropriate section for the Windows clients that will be configured for printing to the EcoLAN 3000E.

5.1 Windows Network Printing Capabilities Overview

The various versions of Windows in combination with the EcoLAN 3000E offer the network printing capabilities described below. The Windows Network Printing Capabilities Table shows which capabilities are supported by each version of Windows.

- Novell NetWare Printing: access to NetWare print queues when a NetWare server is present.
- Peer to Peer Printing: direct access to the 3000E over either IPX or TCP/IP without requiring a server.
- LPR Printing: access to a Windows LPR spooler over TCP/IP.
- Windows Shared Access Printing: access to a shared network printer configured on another Windows 3.11, Windows 95, Windows 98, or Windows NT machine.

Table 1: Windows Network Printing Capabilities

	Windows 3.1	Windows 3.11	Windows 95 or 98	Windows NT 3.51	Windows NT 4.0
NetWare Printing	Yes	Yes	Yes	Yes	Yes
Peer to Peer Printing			Yes		Yes
LPR Printing		Yes	Yes	Yes	Yes
Shared Access Printing		Yes	Yes	Yes	Yes

The optimum Windows printing configuration for you depends upon your particular environment including user and administrator experience and preferences. Generally, NetWare Print Services will be utilized when a NetWare server is present. In the absence of a NetWare server, LPR printing in combination with Shared Access printing is often used in environments where TCP/IP is already in use. Peer to Peer printing is most often used when a NetWare server is not available and when TCP/IP is not in use.

5.3 Windows for Workgroups 3.11

5.4 Windows 95 and Windows 98

5.5 Windows NT 3.51

5.6 Windows NT 4.0

5.1.1 Windows Shared Access Printing Overview

For clarity in describing the process of printer sharing, the term “host” is used to refer to a Windows machine that has defined a network printer and enabled sharing of that printer. The term “client” is used to refer to a Windows machine which accesses a printer shared by a Windows “host”. Any Windows for Workgroups 3.11, Windows 95/98, or Windows NT 3.51 or 4.0 machine may function as either a client or a host (or both).

The Windows clients accessing a printer do not necessarily need to use the same protocol that the Windows host uses to communicate with the printer. For example, a printer connected to an LPR spooler via TCP/IP on a Windows 95 host, could be accessed by a Windows for Workgroups 3.11 client using the standard Windows Netbeui protocol; even when TCP/IP is not installed on the Windows for Workgroups 3.11 client. This capability to host a shared printer over a different protocol than that used by the clients provides tremendous flexibility in Windows network printing architecture.

5.3.3 Windows for Workgroups 3.11 Shared Access Printing

5.4.4 Windows 95/98 Shared Access Printing

5.5.3 Windows NT 3.51 Shared Access Printing

5.6.4 Windows NT 4.0 Shared Access Printing

5.2 Windows 3.1

Windows 3.1 is the oldest and least flexible of the Windows versions covered in this manual. Windows 3.1 network printing capability is limited to Novell NetWare printing. Prior to printing from the Windows clients via NetWare, the 3000E must be configured for NetWare printing. Please refer to Chapter 4 for instructions on NetWare printing configuration of the 3000E.

Once NetWare printing is configured, Windows 3.1 clients access the 3000E NetWare print queue by issuing a CAPTURE command (often in the user login script) or through Control Panel, Printers, Connect, Network. See your NetWare documentation for additional information.

5.3 Windows for Workgroups 3.11

5.1 Windows Network Printing Capabilities

5.3.1 Windows for Workgroups 3.11 NetWare Printing

Prior to printing from the Windows clients via NetWare, the 3000E must be configured for NetWare printing. Please refer to Chapter 4 for instructions on NetWare printing configuration of the 3000E.

Once NetWare printing is configured, Windows for Workgroups 3.11 clients access the 3000E NetWare print queue by issuing a CAPTURE command (often in the NetWare user login script) or through Control Panel, Printers, Connect, Network. See your NetWare documentation for additional information.

5.3.2 Windows for Workgroups 3.11 LPR Printing

LPR printing requires that the workstation have TCP/IP capability and the corresponding LPR spooler. If the printer is not shared, then an LPR queue must be created on each workstation from which printing is initiated.

Windows for Workgroups does not include TCP/IP, however, various TCP/IP facilities are available for Windows for Workgroups workstations, including a free TCP/ IP provided by Microsoft. Third party LPR spoolers are also available. The following instructions are based on the Microsoft TCP/IP and a shareware LPR application that is available from various sources, including Kyocera (www.kyocera.com/printers/techsupp.html). You will need the files ***WFWTCP32.zip*** and ***WFWTCP32.txt*** for TCP/IP, and ***wlprs41.zip*** and ***wlprspl.txt*** for the LPR spooler.

Installing Windows for Workgroups 3.11 TCP/IP

Follow the instructions in the text file for the TCP/IP stack to set up TCP/IP on the workstations.

Assigning the EcoLAN 3000E IP Address

The 3000E must be configured for TCP/IP communication. Please refer to section 5.7 for instructions.

5.7 EcoLAN 3000E TCP/IP Configuration from Windows.

Loading the LPR Spooler

The Windows LPR Spooler Version 4.1 - User's Guide (**wlprspl.txt**), provides detailed instructions for decompressing and installing the shareware LPR spooler.

Creating an LPR Queue on the Workstation

Once you install the spooler onto the workstation, the setup program will create a group and icon.

1. Double click on the spooler icon.
2. Click on **setup**, and define a new queue.
3. At the Remote Host Name prompt enter the EcoLAN 3000E IP Address. Enter **PORT1** for the Remote Printer Name
4. Go to Control Panel, Printers, and choose **Connect**.

5. Select your driver and click on **Next**.

An entry for your Windows LPR Spooler's printer should now be displayed in the "Available ports" listing. For example, C:\SPOOL\PRINTER_NAME.

To set this printer as shared so that it may be accessed by other Windows clients, see the following section.

5.3.3 Windows for Workgroups 3.11 Shared Access Printing

For clarity in describing the process of printer sharing, the term "host" is used to refer to a Windows machine that has defined a network printer and enabled sharing of that printer. The term "client" is used to refer to a Windows machine which accesses a printer shared by a Windows "host". Any Windows for Workgroups 3.11, Windows 95/98, or Windows NT 3.51 or 4.0 machine may function as either a client or a host (or both).

The Windows clients accessing a printer do not necessarily need to use the same protocol that the Windows host uses to communicate with the printer. For example, a printer connected to an LPR spooler via TCP/IP on a Windows 95 host, could be accessed by a Windows for Workgroups 3.11 client using the standard Windows Netbeui protocol; even when TCP/IP is not installed on the Windows for Workgroups 3.11 client. This capability to host a shared printer over a different protocol than that used by the clients provides tremendous flexibility in Windows network printing architecture.

5.4 Windows 95 and Windows 98

5.1 Windows Network Printing Capabilities Overview

5.4.1 Windows 95/98 NetWare Printing

Prior to printing from the Windows clients via NetWare, the 3000E must be configured for NetWare printing. Please refer to Chapter 4 for instructions on NetWare printing configuration of the 3000E.

Once NetWare printing is configured, Windows 95 clients can access the 3000E NetWare print queue in a number of ways, such as by issuing a CAPTURE command (often in the NetWare user login script) or through the Windows Explorer by right clicking on the Printers folder and selecting Capture Printer Port, or through Start, Settings, Printers, right clicking on the desired printer and selecting Properties, and selecting Add Port on the Details tab.

5.4.2 Windows 95/98 (and NT 4.0) Peer to Peer Printing

The peer to peer printing software which is included with the EcoLAN 3000E allows Windows 95/98 PCs and Windows NT 4.0 workstations to communicate directly with network attached printers. A network server, such as NetWare or Windows NT, is not required for peer to peer printing. The peer to peer printing software must be installed on each PC or workstation that will use peer to peer printing. Once the peer to peer printing software is installed, all EcoLAN 3000E boards on the network automatically appear in the list of available printer ports.

The peer to peer printing software can also be used in networks where servers are present, however, often the server print services are utilized instead. Server-based print services offer centralized printing management and spooling and do not require software (other than the printer driver) to be installed on each PC.

5.4.2.1 Peer to Peer Printing over IP or IPX

Peer to peer printing is available over both the IP and the IPX protocols. At least one of these protocols must be installed before peer to peer printing may be used. It is assumed that the IP protocol will be used for peer to peer printing only if the Windows PCs are already configured with IP addresses; otherwise, the simpler to configure IPX protocol would most likely be used.

5.4.2.2 Configuration of Peer to Peer Printing over IPX

Windows 95/98 IPX Protocol Installation

The IPX protocol must be installed on each PC that will use peer to peer printing over IPX. The following instructions describe installation of the IPX protocol.

1. Click on the Windows 95/98 Start button and select **Settings, Control Panel, Network.**
2. Check to see if **IPX/SPX-compatible Protocol** is displayed on the list of network components. If it is on the list, IPX is already installed. Please continue with the next section. If it is NOT on the list, click on **Add.**
3. Double click on **Protocol,** click on **Microsoft**, and double click on **IPX/SPX-compatible Protocol.** Windows will prompt for the required Windows disks to install the IPX protocol.
4. Once the files are copied, click on **OK** to close the network control panel. Windows will prompt to restart the system. The IPX protocol will not be active until the system is restarted.

Windows NT 4.0 IPX Protocol Installation

The IPX protocol must be installed on each PC that will use peer to peer printing over IPX. The following instructions describe installation of the IPX protocol.

1. Click on the Windows NT 4.0 Start button and select **Settings, Control Panel, Network.**
2. Click on the Protocols tab and check to see if **NWLink IPX/SPX Compatible Transport** is displayed on the list of protocols. If it is on the list, IPX is already installed. Please continue with the next section. If it is NOT on the list, click on **Add.**
3. Select **NWLink IPX/SPX Compatible Transport** from the list of protocols and click on **OK**. Windows will prompt for the required Windows disks to install the IPX protocol.
4. Once the files are copied, click on **OK** to close the network control panel. Windows will prompt to restart the system. The IPX protocol will not be active until the system is restarted.

Optional: Changing the Printer Name

The IPX peer to peer printing software uses the NetWare Print Server Name to identify the 3000E. The default name is the serial number preceded by KYO, e.g., KYO_163495. If desired, this name can be changed to a more easily identifiable name with the Management Access Program (MAP).

To change the name with MAP, follow the MAP configuration instructions in section 4.4 - EcoLAN 3000E Configuration (the settings other than NetWare Print Server Name do not need to be entered). MAP requires the IPX protocol.

IPX Peer to Peer Printing Software Installation

The peer to peer printing software should be installed on each Windows 95/98 PC or Windows NT 4.0 workstation that will use peer to peer printing services.

The IPX Peer to Peer Printing setup program may be launched from the same Acrobat .PDF files which were used to access this manual or may be run directly from the CD ROM using the following procedure:

1. Insert the CD ROM included with the EcoLAN 3000E.
2. Click on the Windows 95/98 or NT 4.0 Start button, select **Run**, and type: **D:\IPX-P2P\SETUP.EXE** (This assumes D is the drive letter of your CD ROM. Substitute the appropriate drive letter if necessary for your system.)

3. Follow the setup program prompts.

Note: The IPX P2P installation program only installs a port monitor in the Windows System directory and so does not prompt for an installation directory or program group. IPX P2P may be uninstalled using the IPX-P2P Uninstaller on the CD.

Printer Driver Setup for IPX Peer to Peer Printing

1. If the Printer Driver is Not Already Installed.
   - 1.1 Install the printer driver from the CD which is shipped with the printer.
   - 1.2 On the Printer Connection screen select **Local** rather than Network. Depending upon the version of the installer, the 3000E may appear in the list of local ports.
   - 1.3 If displayed in the list, select the 3000E and complete the driver installation. If not displayed in the list, select **LPT1** and complete installation, then follow the instructions in section 2 below.
2. If the Printer Driver is Already Installed.
   - 2.1 Click on the Windows **Start** button and select **Settings**, then **Printers**.
   - 2.2 Right click on the appropriate printer driver and select **Properties**.
   - 2.3 In Windows 95/98 select the **Details** tab and click on the down arrow beside the **Print to the following port:** field to display the list of available ports. In NT 4.0 select the **Ports** tab and scroll down the list of ports.
   - 2.4 Select the 3000E from the list of ports and click on OK. The 3000E IPX Peer to Peer printers are displayed by NetWare Print Server Name.

Note: If the 3000E Does Not Appear on the List
If your network is using multiple IPX frame types, and the workstation running IPX Peer to Peer and the 3000E are NOT using the same frame type, then the 3000E will not appear in the list of ports. A common scenario is that the workstation frame type is set to Auto and is using frame type 802.2 while the 3000E is using frame type 802.3. The 3000E frame type can be changed using the printer front panel. See the instructions in Section 8.1 for setting the IP address with the front panel, but go into the NetWare submenu rather than the TCP/IP submenu.

Peer to peer printing configuration is complete. Print jobs will now be directed to the selected 3000E when the current printer driver is used.

IPX Protocol Notes

When using peer to peer printing over IPX, Novell operation must remain enabled on the EcoLAN 3000E, even if traditional NetWare printing facilities are not being used.

On power up, the EcoLAN 3000E checks the network to see if there is Novell activity. If there is, it will use the same frame type and the local network number for IPX peer to peer that it senses for Novell. If the 3000E does not see any Novell activity, it will use 802.2 on 802.3 as the frame type and will assign itself a network number of 0. The frame type and network number in use are reported on the EcoLAN 3000E Network Status Page.

If the 3000E is moved from a site that had active Novell servers to a site that does not, the unit should be reset to factory defaults to clear the frame type and network number information. Reset to factory defaults can be done with MAP or a with a standard web browser over TCP/IP.

5.4.2.3 Configuration of Peer to Peer Printing over IP

Windows 95/98 and NT 4.0 TCP/IP Protocol Installation

Each PC that will use peer to peer printing over IP must have the TCP/IP protocol installed and configured with a valid IP address. If the TCP/IP protocol is not currently installed, then use of the IPX protocol is recommended, however, instructions for TCP/IP protocol installation are in the Windows 95/98 LPR Printing and Windows NT 4.0 LPR Printing sections.

EcoLAN 3000E IP Address Configuration

The 3000E must be configured for TCP/IP communication. Please refer to section 5.7 for instructions.

5.7 EcoLAN 3000E TCP/IP Configuration from Windows.

IP Peer to Peer Printing Software Installation

The peer to peer printing software should be installed on each Windows 95/98 PC or Windows NT 4.0 workstation that will use peer to peer printing services.

The IP Peer to Peer Printing setup program may be launched from the same Acrobat .PDF files which were used to access this manual or may be run directly from the CD ROM using the following procedure:

1. Insert the CD ROM included with the EcoLAN 3000E.
2. Click on the Windows 95/98 or NT 4.0 Start button, select **Run**, and type: **D:\IP-P2P\SETUP.EXE** (This assumes D is the drive letter of your CD ROM. Substitute the appropriate drive letter if necessary for your system.)

3. Follow the setup program prompts.
4. The setup program installs a P2P-IP icon in the EcoLAN folder which may be used for additional IP peer to peer configuration options. Usually it is unnecessary to change the default values. See IP Peer to Peer Configuration Options later in this section for descriptions of the configuration options.

Printer Driver Setup for IP Peer to Peer Printing

1. If the Printer Driver is Not Already Installed.
   - 1.1 Install the printer driver from the CD which is shipped with the printer.
   - 1.2 On the Printer Connection screen select **Local** rather than Network. Depending upon the version of the installer, the 3000E may appear in the list of local ports.
   - 1.3 If displayed in the list, select the 3000E and complete the driver installation. If not displayed in the list, select **LPT1** and complete installation, then follow the instructions in section 2 below.
2. If the Printer Driver is Already Installed.
   - 2.1 Click on the Windows **Start** button and select **Settings**, then **Printers**.
   - 2.2 Right click on the appropriate printer driver and select **Properties**.
   - 2.3 In Windows 95/98 select the **Details** tab and click on the down arrow beside the **Print to the following port:** field to display the list of available ports. In NT 4.0 select the **Ports** tab and scroll down the list of ports.
   - 2.4 Select the 3000E from the list of ports and click on **OK**. IP Peer to Peer printers are displayed by IP address.

Note: If only IP printers on the local network segment are displayed, your router may not be forwarding SNMP broadcasts.

Peer to peer printing configuration is complete. Print jobs will now be directed to the selected 3000E when the current printer driver is used.

IP Peer to Peer Configuration Options

Launch the P2P-IP icon in the EcoLAN folder to display the configuration options.

Max Hops for Search

The hop count number determines how many networks the program will search to find EcoLAN 3000E units. An entry of 0 on the screen searches only the network wire directly connected to the workstation. An entry of 2 would search the wire directly connected to the workstation, and all networks accessible through two routers. Entries of 15 or higher will automatically search every connected network (this number is not recommended due to the network traffic it would generate).

IP Port Base

The IP port base number listed is one less than the actual port number. Thus, for the EcoLAN 3000E default port number of 9100, the IP base port number is 9099. This setting should only be changed if the EcoLAN 3000E port number is changed.

Printer Names

By default the printers are displayed in the list of printer ports by their IP address. This option allows the printers to be displayed by their six digit serial numbers instead of by IP address.

Printers...

The Printers... button opens a dialog that allows defining a specific printer which otherwise may not have been discovered, such as a printer which is farther away than the Max Hops to Search for value. While the standard printers (displayed by IP address) will appear or not appear in the list of ports depending upon whether they are turned on and/or attached to the network, printers defined on this screen will be displayed by name rather than by IP address and will always be displayed in the list of ports. Thus, printers defined on this screen may be selected for printing, but may not actually be available.

5.4.3 Windows 95/98 LPR Printing

LPR printing requires that the workstation have TCP/IP capability and the corresponding LPR spooler. If the printer is not shared, then an LPR queue must be created on each workstation from which printing is initiated.

Windows 95/98 includes TCP/IP. To print with this protocol, the Windows 95/98 workstation also requires an LPR utility. The following instructions are based on a shareware LPR application that is available from various sources, including Kyocera (www.kyocera.com/printers/techsupp.html). You will need the **wlprs41.zip** and **wlprspl.txt** for the LPR spooler.

Installing Windows 95/98 TCP/IP

1. Click on the Windows Start button, select **Settings**, and **Control Panel**.
2. Double click on **Network** and select the **Configuration** tab. If *TCP/IP* is not in the list of installed network components, click on **Add** to install it.
3. Select **Protocol** and click on **Add**.
4. Select **Microsoft** from the list of Manufacturers and **TCP/IP** from the list of Network Protocols and click **OK** to return to the Network dialog.
5. If using DHCP to automatically obtain TCP/IP configuration, then skip to step 6. If not using DHCP, double click on **TCP/IP** in the list of installed network components and enter the IP address and other TCP/IP properties as necessary for your network communications. (For LPR printing, only IP address is necessary if the printer and PC are on the same network segment). Click **OK** to close the TCP/IP Properties dialog.
6. Click **OK** to close the Network dialog and insert the Windows disk or CD as prompted.
7. Windows will prompt to restart your system. The TCP/IP protocol will not be active until the system is restarted.

Assigning the EcoLAN 3000E IP Address

The 3000E must be configured for TCP/IP communication. Please refer to section 5.7 for instructions.

5.7 EcoLAN 3000E TCP/IP Configuration from Windows.

Setting Up LPR on the Workstation

Once you install the spooler onto the workstation; the setup program will create a group and icon.

1. Double click on the spooler icon.
2. Click on **setup**, define new queue.
3. At the Remote Host Name prompt enter the EcoLAN 3000E's IP Address, and for the Remote Printer Name enter **PORT1**.
4. Go to **Settings**.
5. Select **Printers**.
6. Choose **Add Printer**.
7. Click on **Next**.
8. Select **Local Printer** and click on **Next**.
9. Select your driver and click on **Next**.

10. The Windows LPR printer should now be displayed in the "Available ports" listing. For example, C:\SPOOL\PRINTER_NAME. Select the LPR printer and complete the printer wizard installation.

5.4.4 Windows 95/98 Shared Access Printing

5.1.1 Windows Shared Access Printing Overview

Setting a Printer as Shared in Windows 95/98

This section covers the steps for a Windows 95/98 machine to set a printer as shared so that other Windows users may access it.

1. Click on the Windows Start button, select **Settings**, and **Control Panel**.
2. Double click on **Network.**
3. On the **Configuration** tab, click on the **File and Print Sharing...** button.
4. Place a check in the box next to, **I want to be able to allow others to print to my printer(s)** and click **OK**.
5. Click **OK** to close the Network window and insert the Windows 95/98 disk or CD as prompted. Windows will prompt to restart your system. Printer sharing will not be active until the system is restarted.
6. After restarting, click on the Windows Start button, select **Settings**, and **Printers.**
7. Right click on the icon of the printer you want to share and select **Sharing**.
8. On the Sharing tab, click on **Shared As** and enter the Share name and a password if desired.

Accessing a Shared Printer from Windows 95/98

This section covers the steps for a Windows 95/98 machine to connect to a shared printer.

1. Click on the Windows Start button, select **Settings**, and **Printers.**
2. Right click on the appropriate printer driver and select **Properties.**
3. On the **Details** tab, click the **Add Port** button and browse the network for the shared printer you wish to access.

5.5 Windows NT 3.51

5.1 Windows Network Printing Capabilities

5.5.1 Windows NT 3.51 NetWare Printing

Prior to printing from the Windows clients via NetWare, the 3000E must be configured for NetWare printing. Please refer to Chapter 4 for instructions on NetWare printing configuration of the 3000E.

Once NetWare printing is configured, Windows NT 3.51 clients can access the 3000E NetWare print queue in a number of ways, such as by issuing a CAPTURE command (often in the NetWare user login script) or through Control Panel, Printers, highlight the appropriate printer, select Connect to Printer from the Printer menu, and choose the NetWare queue from the Shared Printers list.

5.5.2 Windows NT 3.51 LPR Printing

LPR printing requires that the workstation have TCP/IP capability and the corresponding LPR spooler. If the printer is not shared, then an LPR queue must be created on each workstation from which printing is initiated.

Windows NT 3.51 includes TCP/IP and LPR capabilities. The TCP/IP Protocol, Simple TCP/IP Services, and Microsoft TCP/IP Printing must be installed prior to establishing LPR printing.

Installing Windows NT 3.51 TCP/IP

The Windows NT system performing the 3000E LPR configuration must have the TCP/IP protocol installed. The following steps describe how to check for and, if necessary, add the required TCP/IP components.

1. In the Program Manager group Main, double click on **Control Panel.**
2. Double click on **Network** and check the list of Installed Network Software for the following three components:

   Microsoft TCP/IP Printing, Simple TCP/IP Services, & TCP/IP Protocol
3. If any of these components are missing, click on **Add Software**, select **TCP/IP Protocol and related components** and click on **Continue.**
4. Select **TCP/IP Network Printing Support** and **Simple TCP/IP Services** and click **Continue.**

5. After all necessary files are copied, click on **OK** to close the Network Settings dialog and restart the system when prompted. The new protocol and/or services will not be available until the system is restarted.

Assigning the EcoLAN 3000E IP Address

The 3000E must be configured for TCP/IP communication. Please refer to section 5.7 for instructions.

5.7 EcoLAN 3000E TCP/IP Configuration from Windows

Setting Up LPR on the Workstation

If the printer driver has not already been installed, please install it from the CD which is shipped with the printer before continuing. In the following instructions, some field or dialog names may vary depending upon the NT release pack in use.

1. In the Program Manager group Main, open the Control Panel and double click on **Printers**.
2. Highlight the appropriate printer and select **Properties** from the Printer menu.
3. Select **Other** from the list of ports displayed in the **Print to:** dialog, then select **LPR port** from the list of Print Destinations.
4. In the **Name or address of host providing lpd:** field, enter the IP address of the 3000E.
5. In the **Name of printer or print queue on that server:** field, enter any desired port name, e.g. LPR1 and click on **OK** to return to the Printer Properties dialog.
6. If the printer is to be shared, click on the checkbox next to **Share this printer on the network**. Click on **OK** when finished.

5.5.3 Windows NT 3.51 Shared Access Printing

5.1.1 Windows Shared Access Printing Overview

Setting a Printer as Shared in Windows NT 3.51

This section covers the steps for a Windows NT 3.51 machine to set a printer as shared so that other Windows users may access it.

1. In the Program Manager group Main, open the Control Panel and double click on **Printers**.
2. Highlight the appropriate printer and select **Properties** from the Printer menu.
3. Click on the checkbox next to **Share this printer on the network**, enter the Share name, and click **OK**.

Accessing a Shared Printer from Windows NT 3.51

This section covers the steps for a Windows NT 3.51 machine to connect to a shared printer.

1. In the Program Manager group Main, open the Control Panel and double click on **Printers**.
2. Highlight the appropriate printer and select **Connect to Printer** from the Printer menu.
3. Select the shared printer from the **Shared Printers** list and click **OK**.

5.6 Windows NT 4.0

5.1 Windows Network Printing Capabilities

5.6.1 Windows NT 4.0 NetWare Printing

Prior to printing from the Windows clients via NetWare, the 3000E must be configured for NetWare printing. Please refer to Chapter 4 for instructions on NetWare printing configuration of the 3000E.

Once NetWare printing is configured, Windows NT 4.0 clients can access the 3000E NetWare print queue in a number of ways, such as by issuing a CAPTURE command (often in the NetWare user login script) or through Start, Settings, Printers, double clicking on Add Printer, selecting Network Printer Server, and choosing the NetWare queue from the list of Shared Printers.

5.6.2 Windows NT 4.0 Peer to Peer Printing

Windows NT 4.0 Peer to Peer printing configuration is identical to Windows 95/98.

5.4.2 Windows 95/98 (& NT 4.0) Peer to Peer Printing

5.6.3 Windows NT 4.0 LPR Printing

LPR printing requires that the workstation have TCP/IP capability and the corresponding LPR spooler. If the printer is not shared, then an LPR queue must be created on each workstation from which printing is initiated.

Windows NT 4.0 includes TCP/IP and LPR capabilities. The TCP/IP Protocol, Simple TCP/IP Services, and Microsoft TCP/IP Printing must be installed prior to establishing LPR printing.

Installing Windows NT 4.0 TCP/IP

The Windows NT system performing the 3000E LPR configuration must have the TCP/IP protocol installed. The following steps describe how to check for and, if necessary, add the required TCP/IP components.

1. Click on the Windows Start button, select **Settings**, and **Control Panel**.
2. Double click on **Network** and select the **Protocols** tab. If *TCP/IP Protocol* is not in the list of Network Protocols, click on **Add** to install it.
3. Select the **Services** tab. If either *Microsoft TCP/IP Printing* or *Simple TCP/IP Services* is not in the list of Network Services, click on **Add** to install them.
4. Click on **Close** when all protocols and services have been added. If the TCP/IP protocol has just been added, Windows will prompt for the IP address and other TCP/IP parameters. The new protocols and services will not be available until the system is restarted.

Assigning the EcoLAN 3000E IP Address

The 3000E must be configured for TCP/IP communication. Please refer to section 5.7 for instructions.

5.7 EcoLAN 3000E TCP/IP Configuration from Windows

Configuring the Printer Driver for LPR Printing

The printer driver should be installed from the CD which is shipped with the printer. Unfortunately, Windows does not make the Add LPR Port available to the Install Wizard on the CD. Therefore, the printer driver should be installed selecting a standard port such as LPT1. Once the driver installation is completed, the driver port setting should be modified for LPR printing using the following procedure. In the following instructions, some field or dialog names may vary depending upon the NT service pack in use.

1. Click on the Windows Start button and select **Settings**, and then **Printers**.
2. Right click on the appropriate printer and select **Properties**.
3. On the **Ports** tab, click on **Add Port**.
4. Double click on **LPR Port** in the list of available printer ports.
5. In the **Name or address of server providing lpd:** field, enter the IP address of the 3000E or the 3000E NetBIOS name (see the WINS Configuration section for more information on using the NetBIOS name).
6. In the **Name of printer or print queue on that server:** field, enter any desired port name, e.g. LPR1, and click on **OK**.
7. Click on **Close** to close the Printer Ports dialog. The 3000E IP address is now displayed and currently selected on the list of ports.
8. If the printer is to be shared, click on the **Sharing** tab, select **Shared** and enter the Share name. Click on **OK** when finished.

5.6.4 Windows NT 4.0 Shared Access Printing

5.1.1 Windows Shared Access Printing Overview

Setting a Printer as Shared in Windows NT 4.0

This section covers the steps for a Windows NT 4.0 machine to set a printer as shared so that other Windows users may access it.

1. Click on the Windows Start button, select **Settings**, and **Printers.**
2. Right click on the icon of the printer you want to share and select **Sharing**.
3. On the Sharing tab, click on **Shared As** and enter the Share name. If desired, click on the Security tab to define access privileges to this printer.

Accessing a Shared Printer from Windows NT 4.0

This section covers the steps for a Windows NT 4.0 machine to connect to a shared printer.

1. Click on the Windows Start button, select **Settings**, and **Printers.**
2. Double click on the **Add Printer** icon.
3. Select **Network Printer Server** rather than My Computer and click on **Next**.
4. Choose the shared printer from the Shared Printers list and continue with the installation. (You will be prompted to install the matching printer driver if the driver is not available from the Windows machine which is hosting the printer).

5.7 EcoLAN 3000E TCP/IP Configuration from Windows

In addition to the Windows TCP/IP configuration described in the LPR Printing and Peer to Peer Printing sections earlier in this chapter, the EcoLAN 3000E must be given IP address and routing information to be used with TCP/IP. The IP address information may be setup by several methods, which are listed below. The best method for you depends upon your existing network configuration as well as your own experience and preferences.

1) With the Printer Front Panel. If you have access to the printer, TCP/IP and other parameters may be set using the printer front panel. See Section 8.1

8.1 Front Panel Setup

2) With Dynamic Host Configuration Protocol (DHCP). If your network is using a DHCP server to assign IP addresses, this will most likely be the preferred method for assigning an IP address to the 3000E. Refer to the DHCP section for more information.

8.2 DHCP

3) With the Management Access Program (MAP). If the Windows workstation has the IPX protocol running, then using MAP is a good choice for assigning the 3000E IP address. Follow the MAP instructions in Chapter 3.

3.1 MAP

4) With the Bootp Lite utility. If the Windows workstation has the IP protocol running, then Bootp Lite may be used for assigning the 3000E IP address. Bootp Lite instructions are in the following section.

5) With the command line utility ARP. If the Windows workstation has the IP protocol running, then ARP utility may be used for assigning the 3000E IP address. ARP instructions are in section 5.7.2.

5.7.1 Assigning the IP Address with BOOTP Lite

Prior to running the Bootp Lite utility, obtain an EcoLAN 3000E Network Status Page from your printer. The status page may be printed on demand by pressing the Status key on the front panel of the printer. Check the network status page to be sure that TCP/IP is enabled, and that an IP address has not already been assigned. Information from the status page will be needed during the Bootp Lite setup procedure.

If the 3000E already has an IP address, the Bootp Lite utility will not work. The new IP address should be assigned by connecting to the existing IP address with a web browser (Chapter 3) or with Telnet (Chapter 8) or, if running IPX, by configuring with MAP (Chapter 3).

The EcoLAN 3000E must be on the same network segment as the workstation that is being used to configure it. The TCP/IP stack must be installed and operating on the workstation. The BOOTP Lite program will not work in a Windows PC operating as a DHCP Server.

Using the Bootp Lite Utility

There are two versions of the Bootp Lite utility, BOOTPL16.EXE and BOOTPL32.EXE. Which version to use depends upon the particular TCP/IP protocol stack in use. The BOOTPL16.EXE utility will work with a 16 bit TCP/IP stack (FTP, NetManage, B&W, or Windows for Workgroups 3.11). The BOOTPL32.EXE utility will work with a 32 bit TCP/IP stack (Windows 95/98 and Windows NT).

These utilities may be copied to your hard disk and run from there or they may be run directly from the CD that is packaged with the 3000E as described in the following directions.

1. Launch the utility. In the following directions, the CD ROM drive letter is assumed to be D. Please substitute the appropriate letter if necessary for your system.
   - Windows for Workgroups 3.11 (or other 16 bit TCP/IP stacks), from Program Manager under **File**, select **Run**, and type: **D:\MAP\BOOTPL16.EXE**.
   - Windows NT 3.51, from Program Manager under **File**, select **Run**, and type: **D:\MAP\BOOTPL32.EXE**.
   - Windows 95/98 or Windows NT 4.0, click on the Start button, select **Run**, and type: **D:\MAP\BOOTPL32.EXE**.
2. Select **Configure** from the Admin menu.

3. Enter the IP parameters.
    - Enter the IP address to assign to the 3000E
    - Enter the Subnet mask. If unsure of the correct Subnet mask and the first number in the 3000E IP address is from 192 to 254, then use 255.255.255.0 as the Subnet mask.
    - Enter the Default Gateway address (the router's IP address) or leave blank.
    - Enter the Hardware Address of the 3000E. This address is listed on the EcoLAN 3000E Network Status Page under 3000E ID Information, Hardware Address. For example, 00:40:af:13:c9:f0. Please enter it as it appears on the status page.
4. Click on Go to send the new settings to the 3000E. Wait 1 or 2 minutes and then press the Status key to print an EcoLAN 3000E Network Status page.The new IP parameters will be listed in the TCP/IP Network Information section on the status page. If the status page doesn't print, recheck the Hardware Address entry in Bootp Lite.
5. The new IP address may also be verified by pinging the 3000E. From an MS/DOS prompt enter: ping [IP address of EcoLAN 3000E], for example:
   ping 197.32.154.12
   If there is no response to the ping, verify the IP address on the EcoLAN 3000E Network Status Page.

5.3.2 Windows for Workgroups 3.11 LPR Printing

5.4.2 Windows 95/98 (and NT 4.0) IP Peer to Peer Printing

5.4.3 Windows 95/98 LPR Printing

5.5.2 Windows NT 3.51 LPR Printing

5.6.3 Windows NT 4.0 LPR Printing

5.7.2 Assigning the IP Address with ARP

Prior to running the ARP command line utility, obtain an EcoLAN 3000E Network Status Page from your printer. The status page may be printed on demand by pressing the Status key on the front panel of the printer. Check the network status page to be sure that TCP/IP is enabled, and that an IP address has not already been assigned. Information from the status page will be needed during the ARP setup procedure.

If the 3000E already has an IP address, the ARP utility will not work. The new IP address should be assigned with the printer front panel (Chapter 8) or by connecting to the existing IP address with a web browser (Chapter 3) or with Telnet (Chapter 8) or, if running IPX, by configuring with MAP (Chapter 3).

The EcoLAN 3000E must be on the same network segment as the workstation that you are using to configure it. The TCP/IP stack must be installed and operating on the workstation.

1. From Windows, open an MS/DOS window.
2. At the DOS prompt enter:
   ping [any valid IP address on your network - not the 3000E],
   for example: ping 201.16.133.5
3. Next enter: arp -s [IP address of 3000E] [Hardware Address of 3000E],
   for example: arp -s 201.16.133.19 00-40-af-36-85-40
   Note that Windows uses dashes separating the hardware address rather than the conventional colons.
4. Next enter: ping [IP address of 3000E],
   for example: ping 201.16.133.19
   The 3000E will not respond to this ping; Request Timed Out will be displayed, but it will accept the address and reset.
5. Wait 1 or 2 minutes and then press the Status key to print an EcoLAN 3000E Network Status page.The new IP address will be listed in the TCP/IP Network Information section on the status page. If the status page does not display the new IP address, double check the Hardware Address entry in your arp -s command.

Note: The ARP procedure only enters the IP address. For networks where subnets are used, the Subnet mask must also be configured. This may be done using the printer front panel, a web browser, Telnet, or MAP.

6

Macintosh Configuration

The network printer information presented in this chapter applies to the Macintosh Operating System. The Macintosh solution for Kyocera printers is supported by an installer on the CD ROM packaged with each Kyocera printer. The installer includes the LaserWriter 8 Driver for printing from a Macintosh. In addition, a utility called KyoManage is included for changing the printer name or remotely setting the IP address of the 3000E.

Important: KPDL, Kyocera's PostScript compatible mode is required for Macintosh printing. KPDL is standard on many Kyocera printers, however, it is optional on the following models: FS-600, FS-680, FS-7000 and all LS (Japanese) models. If KPDL is installed, it will appear in the Emulation list in the following procedure and on the printer Status Page.

6.1 Setting KPDL Emulation

For all printers except the FS-600 and FS-680, the default emulation for the Option Interface must be set to KPDL or KPDL (Auto). Use the following procedure to set KPDL emulation with the printer front panel.

1. Press the **MODE** key.
2. If the first line of the LED panel does not already display `INTERFACE`, press the + or – key until `INTERFACE` is displayed.
3. If the line below `INTERFACE` does not already display `OPTION` (`OPTION 2` on the FS-7000), press the **ENTER** key, then + or – until `OPTION` is displayed and press **ENTER**.
4. Press + or – until `EMULATION` is displayed. Press the **ENTER** key. A question mark will appear next to the current emulation.
5. Press + or - until `KPDL` or `KPDL(AUTO)` is displayed. If the printer will be receiving only KPDL jobs, set the emulation to `KPDL`. If it will also be receiving non-KPDL jobs, set it to `KPDL(AUTO)`. Press **ENTER** to set the new emulation. Note: If the KPDL selections are not available, then the KPDL option has not been installed in the printer
6. Press the **MODE** key to exit the menu system.

6.2 Naming the Printer and Setting the Zone

The 3000E has a default name of KYO_<serial#>, e.g. KYO_163479. This may be changed to a more user friendly name using a standard web browser. Connecting with a browser requires TCP/IP to be setup on the printer and the Macintosh. If TCP/IP is not in use, the name may be changed using the KyoManage utility as described in Section 6.4.

1. Set the printer's IP Address, Subnet Mask, and Default Gateway with DHCP Section 8.2, with the printer's front panel Section 8.1, or with KyoManage Section 6.4.
2. Connect to the 3000E with a web browser by entering the IP address as the URL, e.g. http://206.129.6.54
3. When the 3000E home page is displayed, select **3000E Configuration**.
4. Select **Setup AppleTalk** in the Protocols column.
5. Enter the Printer Name. Enter the Zone Name if other than the default zone.
6. Type the password, **sysadm**, in the appropriate box and click **Accept Settings**. After a few seconds the screen should report that the update was successful.
7. Click the Back Arrow icon twice to return to the 3000E Configuration page. If NetWare is not in use, it may be disabled under the Setup NetWare option. Be aware that Windows IPX Peer to Peer printing requires NetWare to be enabled.
8. The new printer and zone names do not take effect until the 3000E is reset. Select **Reset** in the System column and click on **Reset Unit**.

6.3 Installing the Driver and Selecting the Printer

The Macintosh LaserWriter Driver is installed from the CD provided with the printer.

1. Insert the CD, open the Drivers folder, then the appropriate country folder, and double click on the FS-Series Installer program in the desired language.
2. Once installation is complete and your system has been restarted, select **Chooser** from the Apple menu to open the Chooser.
3. Select the **LaserWriter 8** driver, the zone (if any) and the 3000E printer.
4. Click on **Create**. The driver will automatically select the appropriate PPD file and will display a dialog allowing selection of the installed printer options.

5. Some, but not all, of the printer options can be automatically detected by the driver. Select installed options as necessary and confirm that the list of installed options matches the printer configuration. Click on **OK**. This completes Macintosh printing configuration.

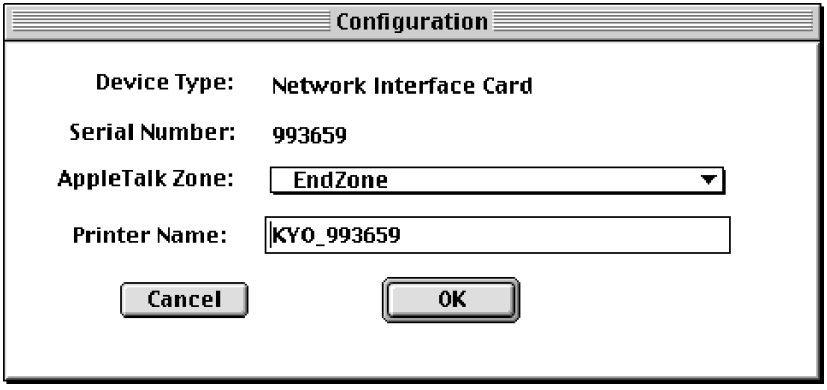
6.4 Using KyoManage

If the Macintosh is using the TCP/IP protocol, it is possible to manage the EcoLAN 3000E from a standard web browser as explained in Chapter 3. Before connecting to the 3000E with a web browser, the 3000E must have an IP address assigned.

The IP address may be assigned using the printer front panel, see Section 8.1, or remotely using a utility called KyoManage. KyoManage also offers an alternative to using a web browser for changing the printer name. KyoManage is included on the CD packaged with the 3000E.

The KyoManage program is located in the KYOMNG folder on the CD. Copy the KYOMNG folder to the desired location on your Macintosh. Use the following procedure to set the 3000E IP address and/or rename the printer:

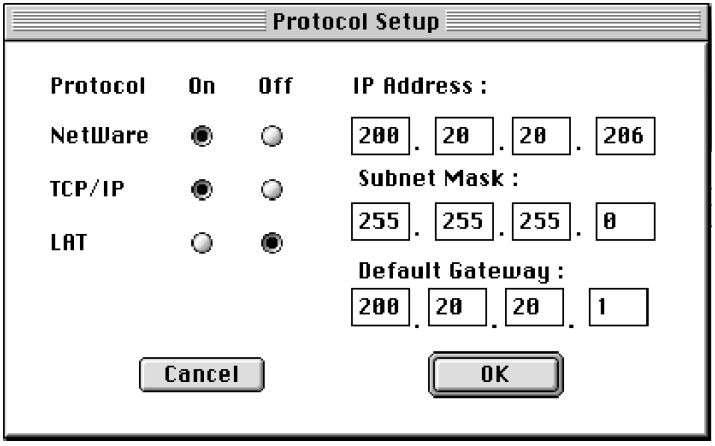
1. In the KYOMNG folder, Open KyoManage.
2. Select the Zone which contains the 3000E, highlight the desired Kyocera printer and click on **Select**.
3. Set the 3000E Printer Name.
   3.1 Open the LAN Printer Server menu and select **Configuration** to display the following screen:



3.2 Type the new AppleTalk name in the Printer Name field and click on **OK**. The new name does not take effect until the 3000E is reset.

4. Set the 3000E IP Address.

   4.1 Open the LAN Printer Server menu and select **Protocol Setup** to display the following screen:



   4.2 Enter the appropriate on/off settings for NetWare and TCP/IP. LAT for DEC systems is not functional for the EcoLAN 3000E.

   4.3 For TCP/IP, set the IP Address, the Subnet Mask and the Default Gateway and click on **OK**.

5. Reset the 3000E. The settings for Printer Name and IP Address do not take effect until the 3000E is Reset. To Reset the 3000E turn the printer off and on or use the following steps in KyoManage.

   5.1 Open the LAN Printer Server menu and select **Reset** and click on the **Reset** button.

   5.2 KyoManage will give a message that communication with the 3000E has failed (because it loses communication while the 3000E is resetting). Wait a minute and then select **File** and **Select Unit** and reselect the 3000E to verify the new settings.

7

UNIX Configuration

This chapter explains how to configure the EcoLAN 3000E and your network for use with TCP/IP communication in various UNIX environments. Setup and installation procedures are provided for most popular UNIX systems. The EcoLAN 3000E TCP/IP capability will also operate with lpr spoolers on other systems, and with spooler/supervisor capabilities that communicate raw print jobs to the Print Server TCP/IP Port. This port number defaults to 9100, but may be changed to any desired number using the *Telnet* utility, SNMP, or the HTML pages accessible via MAP or a Web Browser.

7. 1 UNIX Configuration Overview

The EcoLAN 3000E can support UNIX TCP/IP printing in two modes:

- Host-based lpd where a supplied line printer daemon is run on one or more workstations and print data is communicated to the EcoLAN 3000E via a TCP/IP port or,
- Printer-based lpd where the printer appears as a host running a line printer daemon.

In general, printer-based lpd is easiest to use on BSD UNIX systems, requiring an entry in the printcap file once the EcoLAN 3000E has its IP information. Some UNIX System V systems have restrictions on support of remote LPD printers, requiring that the host-based LPD approach be used. For many operating systems, you have the option of using host-resident printing or print server-resident printing. Each mode has certain advantages.

- The host-resident method can print the username and filename on its banner page; the print server-resident method prints a banner page with the host's name.
- The print server-resident method requires you to configure the printer only one time, when you install the print server. The host-resident method requires that a printing daemon be installed on every host that you want to be able to print jobs.

Note: The EcoLAN 3000E will also operate with other host-resident print supervisor/spooler programs that present a print image to the printer over a TCP/IP port. The base TCP/IP port number can be changed via Telnet, or the NIC HTML setup pages accessed by MAP or a Web Browser. Remember, the actual port is always one higher than the base port number. The Network Status Page indicates the actual port number.

Between the host-based and printer-based TCP/IP printing capabilities, the EcoLAN 3000E works with:

- All UNIX systems that support lpd
- System V Rel. 4 (on 386 platforms)
- DEC ULTRIX RISC Versions 4.3 and 4.4
- DEC OSF/1 Versions 2.0 and 3.0
- Solaris: Version 1.1.3 (SunOS 4.1.3), Version 2.3 (SunOS 5.3), Versions 2.4, and2.5
- HP-UX Series 700 and 800 Version 9.01 and Version 10.0
- IBM AIX Version 3.2.5
- SCO UNIX Version 3.2
- AS400

The CD ROM also includes source code so that you can recompile host-based code for configuring on other System V platforms.

7.2 Configuring the EcoLAN 3000E IP Address

Regardless of the printing mode selected, the EcoLAN 3000E must be given IP address and routing parameters. You can configure the IP address for the EcoLAN 3000E in one of the following ways:

- Use the Printer Front Panel, as described in Section 8.1.
- Use DHCP, as described in Section 8.2.
- Use MAP, as described in Section 3.1.
- Use the AppleTalk KyoManage utility, as described in Section 6.4.
- Use the Internet Boot Protocol (BOOTP).
- Use the reverse ARP (rarp) capability (Ethernet II frame type only).

- Use the arp and ping capability.

For each of the methods covered in this section, you will need to provide the Ethernet address of the EcoLAN 3000E. The Ethernet address is the 12-character code that is listed as Hardware Address on the EcoLAN 3000E Network Status Page.

You can use the BOOTP, rarp, or ping procedures only when the Print Server is in its factory default state (no IP information entered.) After the Print Server has an IP address, you must use the printer front panel, the *Telnet* utility, the AppleTalk KYOManage utility for the Macintosh, or the EcoLAN 3000E HTML management pages accessed through the MAP utility or a Web Browser to change an IP address, Subnet Mask and Default Gateway.

7.2.1 Using BOOTP

The BOOTP daemon is a native TCP/IP option for configuring the IP address of a diskless network device. To communicate the IP address, use the following procedure:

1. Turn off the printer.
2. Log in as superuser on a host on the same subnet as the print server. However, if the server resides on another subnet, complete this procedure to store the IP address in the print server. Reconnect the print server anywhere on the network, and then use *Telnet* or the HTML pages accessed by MAP or a Web Browser utility to change the IP address. See section 8.4 for instructions on using *Telnet*.
3. Find the Ethernet address of the EcoLAN 3000E. The address is listed as Hardware Address on the EcoLAN 3000E Network Status Page.
4. Edit the hosts file (usually /etc/hosts) or use NIS or DIS to add the IP address and EcoLAN 3000E's node name. See the network administrator for the IP address. For example, a EcoLAN 3000E named printfast with an IP address of 192.9.200.200 has the following entry:

   192.9.200.200 printfast
5. Stop the BOOTP daemon if it is running.

6. Edit the /etc/BOOTPtab file and add the following information:

   nic_host:\
   :ht = hardware type:\
   :ha = ethernet address:\
   :ip = IP address:\
   :sm = subnet mask:\
   :gw = gateway address:

For example, for an RFC 1048 system:

   printfast:\
   :ht = ether:\
   :ha = 0040AF03AF6E:\
   :ip = 192.9.200.200:\
   :sm = 255.0.0.0:\
   :gw = 192.9.200.10:\

If running with a more recent BOOTP implementation, such as with SCO UNIX, add:

   :vm = rfc1048:

The same information uses the following format on an RFC 951 system:

host	htype	haddr	iaddr	bootfile
printfast	1	00:40:af:03:af:6e	192.9.200.200	defaultboot

7. Start the BOOTP daemon by typing:
   bootpd -s
8. Check the printer to verify that the EcoLAN 3000E is connected to the network. Turn on the printer.
9. Wait 1 or 2 minutes to allow enough time for the IP address to become known and to be saved in non-volatile memory. Press the Status key and verify the new IP address information on the EcoLAN 3000E Network Status page or send a ping command to verify that the 3000E obtained its IP address. For example:

   ```
   ping 192.9.200.200
   ```

   If the 3000E has the address, the result is a confirmation message:

   ```
   192.9.200.200 is alive
   ```

10. Remove, or comment out, your changes to the /etc/BOOTPtab file.
11. Stop the BOOTP daemon and, if you want it to run, restart it.

7.2.2 Using *rarp*

The Reverse Address Resolution Protocol (*rarp*) allows network devices to query a server for their IP addresses on start-up. For this procedure, there needs to be a workstation with a *rarp* server. To store the IP address, use the following procedure:

1. Turn off the printer.
2. Log in as *superuser* on the *rarp* server. However, if the server resides on another subnet, complete this procedure to store the IP address in the print server. Reconnect the print server anywhere on the network, and then use the *Telnet* or the HTML pages accessed by MAP or a Web Browser to adjust the IP parameters for the subnet on which the EcoLAN 3000E is to operate.
3. Find the Ethernet address of the EcoLAN 3000E. The address is listed as Hardware Address on the EcoLAN 3000E Network Status Page.
4. Edit the *hosts* file (usually */etc/hosts*) or use NIS or DIS to add the IP Address and EcoLAN 3000E's node name. See the network administrator for the IP address. For example, a print server with the name of *printfast* has the following entry:

   ```
   192.9.200.200  printfast
   ```

5. Edit the */etc/ethers* file or use NIS or DIS to add the Ethernet address. To continue the example, for the *printfast* card with an Ethernet address of 00:40:c8:00:00:ff, make the following entry:

   ```
   0:40:c8:0:0:ff printfast
   ```

6. If the ***rarp*** daemon is running, stop it and restart it. Verify that the daemon is running.
7. Check the printer to see that the print server is connected to the network. Turn on the printer.
8. Wait 1 or 2 minutes to allow enough time for the IP address to become known and to be saved in non-volatile memory. Press the Status key and verify the new IP address information on the EcoLAN 3000E Network Status page or send a ping command to verify that the 3000E obtained its IP address. For example:

   ```
   ping 192.9.200.200
   ```

   If the 3000E has the address, the result is a confirmation message:

   ```
   192.9.200.200 is alive
   ```

9. Remove, or comment out, your changes to the */etc/ethers* file.
10. Stop the *rarp* daemon and, if you want it to run, restart it.

7.2.3 Using *ping*

Use the following procedure to enter the IP Address:

1. Turn off the printer.
2. Log in as *superuser* on a host on the same subnet as the print server. However, if the server resides on another subnet, complete this procedure to store the IP address in the print server. Reconnect the print server anywhere on the network, and then use *Telnet* or the HTML pages accessed by MAP or a Web Browser utility to change the IP address. See section 8.4 for instructions on using *Telnet*.
3. Find the Ethernet address of the EcoLAN 3000E. The address is listed as Hardware Address on the EcoLAN 3000E Network Status Page.
4. Edit the *hosts* file (usually */etc/hosts*) or use NIS or DIS to add the IP address and [print server's node name. See the network administrator for the IP address. For example, a print server with a name of *printfast* and an IP address of 192.9.200.200 has the following entry:

   ```
   192.9.200.200  printfast
   ```

5. Add an entry to the ***arp*** cache for the Print Server's IP address and Ethernet address. For example:

   ```
   arp -s 192.9.200.200 0:40:c8:0:0:ff
   ```

6. Check the printer to see that the 3000E is connected to the network. Turn on the printer.
7. Send a ping command the EcoLAN 3000E to verify it is running on the network. For example:

   ```
   ping 192.9.200.200 or
   ping printfast
   ```

   The EcoLAN 3000E will not respond to this *ping* command but it will read its IP address from the packets.
8. Turn the printer off and back on again and then send the ping command again to verify that the print server obtained its IP address. If the Print Server has the address, the result is a confirmation message:

   ```
   192.9.200.200 is alive
   ```

9. Remove the entry from the arp cache using the following command. Specify the Print Server either by its IP address or by its name. For example:

   ```
   arp -d printfast
   ```

7.3 Printer-based lpd Printing

lpd is an implementation of the standard UNIX line printer daemon which lets you print across a TCP/IP network without the need to install software on your workstation. All filtering and banners are done by EcoLAN 3000E. Remote printing uses the same commands (lpr, lpq, lpc) as local printing.

The process begins when the lpr call finds a printer on a remote system by looking at the remote (rm) entry in the */etc/printcap* file for that printer. lpr handles a print job for a remote printer by opening a connection with the lpd process on the remote system and sending the data file (followed by the control file containing control information for this job) to the remote system. The printer-based lpd then filters the data and prints the job according to information contained in the control file and its own printcap file.

EcoLAN 3000E lpd recognizes the format of a certain printer emulations and filters the data, if possible, so it can be printed on the printer type you specify. You can indicate to the EcoLAN 3000E lpd what type of printer is attached to by either:

1. Accepting the default port setting (PCL, PostScript and other), or
2. Changing the listed emulations via the *Telnet* or the HTML pages accessed by MAP or a Web Browser utility.

The following sections give specific lpd setup instructions for various systems.

7.3.1 Setting Up a BSD Remote Printer to Use lpd

To set up a remote printer on the host that sends jobs to EcoLAN 3000E using printer resident lpd, add an entry to the /etc/printcap file on your host for each printer you use. The steps are described below.

1. Open the /etc/printcap file. Make an entry naming the EcoLAN 3000E as the remote host and PORT1 as the remote printer name. A typical printcap entry is shown below:

   ```
   <printer_name>\
   ```

   (for example, lprprinter)

   ```
   :lp=:\
   :rm=<remote_host>:\
   ```

   (for example, name as entered in /etc/hosts)

   ```
   :rp=PORT1:\
   :sd=/usr/spool/lpd/<printer_name>:
   ```

   (for example, spool directory on system used to spool data and control files)

This entry will send jobs spooled at /usr/spool/lpd/<printer_name> to the printer designated <printer_name> to be printed at port 1 (the internal connection to the printer) of the EcoLAN 3000E designated as <remote_host>.

2. Create the spooling directory. For example, type:
   ```
   mkdir /usr/spool/lpd/<printer_name>
   ```
3. To print via the spooler, use the lpr command. Type:
   ```
   lpr-P <printer_name>< file_name>
   ```

Installation and testing is done. You are now ready to print.

7.3.2 Setting Up an AIX Version 2.5 Remote Printer to Use lpd

Set up a remote printer on the host that sends jobs to the EcoLAN 3000E using the EcoLAN 3000E's lpd. Use the following procedures to do this:

1. At the prompt, type:
   ```
   #smit spooler <cr>
   ```
2. When a window appears, select **Manage Remote Printers**.
3. When a menu appears, select **Client Services**.
4. Another menu appears, select **Remote Printer Queues**.
5. Another menu appears, select **Add a Remote Queue**.
6. When a window appears, change the values shown to configure the EcoLAN 3000E. The values displayed are default values. You must replace the short and long form filter values with the values shown below.

Requested Information Inputted Data	**Example**	**Description of Inputted Data**
Name of queue to add	print1	Name of local printer
queue Destination Host	printfast	EcoLAN 3000E IP hostname
Short Form Filter	/usr/lpd/bsdshort	Required value
Long Form Filter	/usr/lpd/bsdlong	Required value
Name of remote printer queue	PORT1	EcoLAN 3000E
Name of device to add	print1	Name of local queue

7. After you have supplied all values, press **e**. You can now print.

7.3.3 Setting Up an AIX 4.0 System

Use the following procedures to install a EcoLAN 3000E in an AIX 4.0 system:

1. Run **SMIT Printer**.
2. Select **Print Spooling**.
3. Select **Add a Print Queue**
4. Select **Remote**.
5. Use **Standard Processing**.
6. Assign a queue name.
7. Use the host address of the EcoLAN 3000E for the Remote System.
8. Use **PORT1** for the queue on the remote system.
9. Add a description (optional).
10. Press **e** to generate.

Installation is complete. Test your printer by executing the following command:

```
lp -d<queue_name> <file_name>
```

7.3.4 Setting Up an HP/UX Remote Printer to Use lpd

Set up a remote printer on the host that sends jobs to a EcoLAN 3000E using the EcoLAN 3000E lpd. To do this:

1. At the prompt, type: **sam**
2. When a window appears, select **Printer/Plotter Manager**.
3. When the menu appears, select **List printer and plotters**.
4. When a list appears, select **Actions in the title bar**.
5. From the pull-down menu, select **Add Remote Printer**.
6. When a window appears, add values to configure EcoLAN 3000E. See the following example.

Input Requested	Example	Description of Inputted Data
Printer Name	myprinter	name to be used in lp command
Remote System Name	fastprint	EcoLAN 3000E hostname as in /etc/hosts
Remote printer Name	PORT1	lpd queue name

7. At the bottom of the screen, select **Remote Printer is on BSD system** from the three choices available.
8. Click on the **OK** button.
9. Ping the unit to test communications. Type:

   ```
   ping  <EcoLAN 3000E IP address>
   ```

10. Ping should confirm your IP address with the message:

    ```
    <EcoLAN 3000E IP address> is alive
    ```

11. If the connection is confirmed, you can now print.

7.3.5 Setting Up an AS/400 System to Use lpd

When working with the output queue description (WORKOUTQD), there are several fields that must be defined for the EcoLAN 3000E to function properly as a remote printer device. Use the following procedures to do this:

1. When prompted for the remote system, type **INTNETADR** so the AS/400 recognizes the device as an IP device.
2. Type **PORT1**.
3. Connection type *must* be **IP**.
4. Internet address *must* be the IP address of the EcoLAN 3000E device.
5. Destination type *must* be **OTHER**.
6. When prompted for transforming SCS to ASCII, type **YES** to allow the AS/400 do the character translation.
7. Manufacturer type and model *must* be the print driver that goes with your printer.

7.3.6 Setting Up a DEC ULTRIX 4.3 RISC or OSF1/ALPHA Remote Printer

Set up a remote printer on the host that sends jobs to a EcoLAN 3000E.

1. At the prompt, type:

   ```
   lprsetup
   ```

2. Select **add**.
3. Enter a name for your printer and press **ENTER**.
4. "Do you want more information on specific printer types? " Press **ENTER**.
5. A list of ULTRIX-supported printers is listed. Type **remote** and press **ENTER**.
6. Enter a printer synonym (alias) and press **ENTER**.

7. Designate a spooler directory and press **ENTER**, or accept the default spooler directory displayed and press **ENTER**.
8. Designate a remote system name and press **ENTER**.
9. Designate **PORT1** as the remote system printer name and press **ENTER**.
10. You are asked to enter the name of a printcap symbol from a displayed list. Type **Q** and press **ENTER**.
11. Your configuration is displayed. You are asked whether these values are final. Type **Y** or **N** and press **ENTER**. An example is shown below.

Printer #7 Symbol	Type	Representative Value
lp (line printer)	STR	
rm (remote host)	STR	EcoLAN 3000E_host
rp (remote printer)	STR	PORT1
sd (spooler directory)	STR	/usr/spool/lpd7

12. Add comments to the printcap file. For example, you can type:
    `Dick's printer down the hall` **ENTER**
13. Select **exit** to save your configuration and press **ENTER**.

You are now prepared to print.

7.3.7 Setting Up a SCO UNIX Remote Printer to Use lpd

Set up a remote printer on the host that sends jobs to a EcoLAN 3000E using lpd. Use the following procedures to do this:

1. At the prompt, type: **mkdev rlp**

Note: You cannot run **mkdev rlp** twice. If you have additional printers to be configured, use the **rlpconf** command.

---

2. You will now be asked a series of questions. Respond as follows. Do you want to install or remove a remote printer? Type: **I**
3. Do you want to change printer description file /etc/printcap? Type: **Y**
4. Write a printer name. For example, type: **lprprinter1**
5. Is lprprinter1 a remote printer or a local printer? Type: **R**

6. Enter remote host name: type host name entered in printcap for EcoLAN 3000E. For example, type: **lprprinter**
7. Confirm the information you have entered. Type: **Y**
8. Confirm the preceding connection as your system default. Type: **Y**
9. Enter another printer name or quit setup. Type: **Q**
10. Do you want to start the remote daemon now? Type: **Y**
11. Using a line editor of your choice, edit the /etc/printcap file by changing the :rp= entry to **PORT1.** For example,

```
printer1:\
```

:lp=:\ (used to specify the device name for a local printer; this field must be empty)

:rm=lprprinter:\ (remote machine name or network name of the print server)

:rp=PORT1:\ (remote printer name or the name of the print server)

:sd=/usr/spool/lpd/printer1: (name of the spool directory on the client)

7.3.8 Setting Up System V Release 4 and Solaris 2.X to Use lpd

If your system recognizes the LPSYSTEM command, you can use lpd. Another option is the admintool if your system supports it.

LPSYSTEM Installation

Use the following procedures to install LPSYSTEM:

Note: The following must be executed from the Bourne Shell. Type: **SH ENTER** to enter the Bourne Shell program.

---

1. **lpsystem -t bsd** <IP_address_of_EcoLAN 3000E>

   Enter EcoLAN 3000E host name in */etc/hosts* file. Your system may want its IP address instead of the remote host name.
2. **lpadmin -p** <*local printername*> -s <*remote host name or IP addre*ss>**!PORT1**

Note: There is no space after the remote host name.

---

3. Enable <*local printername*>
4. Accept <*local printername*>

7.4 Host-based lpd Printing

The CD ROM provided with the EcoLAN 3000E includes install scripts for various UNIX systems. This section describes how to install TCP/IP printing to the EcoLAN 3000E on any of the following operating systems:

- DEC ULTRIX 4.3 RISC
- System V Rel. 4
- Solaris (Ver. 1.*x*, 2.*x*)
- SCO UNIX
- OSF1/ALPHA
- IBM AIX
- HP/UX

Once the EcoLAN 3000E has its IP information loaded, the following steps are necessary for Host-Side TCP/IP printing:

1. Load the print server software on your workstation. It is presented as a *tar* file on the CD ROM.
2. Run the appropriate installation script, if available.
3. Complete the configuration for your operating system.

7.4.1 Loading the Software

The following procedures are only necessary when using the supplied host-based lpd capability. Loading the software is not necessary if printer-based lpd is used.

Important: The host-based lpd requires a TCP/IP port number of 10001. The default port number for the EcoLAN 3000E is 9100. Please use Telnet, the MAP utility, or a Web Browser to change the port number. In the configuration utilities the port number is set to one less than the desired port number. For example, for port 10001, enter 10000. The EcoLAN 3000E Network Status Page displays the actual port number in use.

---

1. Log in as *superuser* to the system that spools directly to the print server.
2. Insert the print server's TCP/IP diskette in the host drive.

3. Go to or create the directory in which you want to install the software. For example:

```
mkdir /usr/PSC_install
```

Note: If you already have a EcoLAN 3000E printer at your site and you are now installing another one, delete the files in the installation directory (not */usr/nic*). If these files remain, they can prevent the installation of a subsequent print server.

---

4. Use the following *tar* command to load the software from the CD ROM.
   `tar -xvf/cdrom/unix`
5. After performing the tar, the system will display a list of EcoLAN 3000E files copied by the tar. At this point, go to the specific section for your system for instructions on running the installation script.

7.4.2 Script Selection of Filters

There will be certain options in executing the script for various systems.

One of the questions posed by the install script is whether the printer is a PostScript printer. If you answered *no* to this question, the install script uses an input filter (infilter) that supplies CR/LF translation to print ASCII files on a PCL printer. If you answered *yes* to this question, your printcap file will reference **psfilter** which offers easy ASCII-to-PostScript conversion. Normal PostScript format files are not affected. Proprietary and public domain filters are available for broader filtering capabilities.

7.4.3 Manual Selection of Filters

The EcoLAN 3000E ships with an input filter called **psfilter** and an output filter called **psbanner** to print PostScript banners.

You may wish to change **infilter** or **outfilter** entries in the /etc/printcap file. The following is a sample printcap entry using these filters:

```
<print_name>  |  EcoLan 3000E printer:\
   :lp=/dev/nic/<printer_name>:\
   :if=/usr/nic/psfilter:\
   :of=/usr/nic/psbanner:\
   :sd=/usr/spool/<printer_name>:
```

7.4.4 Installing and Printing on Ver. 1 Solaris and OSF1 Systems

1. Run the Installation script by typing: **nicinst**.

   The script automatically downloads the correct EcoLAN 3000E utilities for your particular system and prompts you for information as needed.

2. What is the node name of the Print Server unit?

   Type the node name entered in /etc/hosts. For example: printfast and press **ENTER**.

3. What is the printer name?

   Type the desired printer name and press **ENTER**.

4. Your screen will now display the information you provided to the install script. For example:

   ```
   Node name of the EcoLAN 3000E: printfast
   Printer name to be used: <printer_name>
   The printer is attached on: PORT 1
   ```

   You are asked to OK this configuration. Type **yes** or **no** and press **ENTER**.

5. Is this printer PostScript?

   Type **yes** or **no** and press **ENTER**.

6. The script creates a printcap entry for the printer just configured. The screen displays the entry and asks if you want the script to append it to your /etc/printcap file. See below for a sample printcap file. Type **yes** or **no** and press **ENTER**. If you type no, you may perform manual edits.

   In your /etc/printcap file, be sure not to change the name of the device given EcoLAN 3000E in Step 2. You must reference the same lp: entry you wrote on the lp command line of the printcap file. For example:

   ```
   <printer_name> | EcoLAN 3000E printer:\
      :lp=/dev/<printer_name>:\
      :if=/usr/nic/infilter:\
      :sd=/usr/spool/<printer_name>:
   ```

   All printcap entries must be prefaced with a tab except for the entry on the first line.

7. The script creates a spool directory in /usr/spool and starts the daemon for the newly configured printer. It also displays the path used if you ever need to restart the daemon. For example:

   ```
   /usr/nic/lpr_print /dev/nic/<printer_name> printfast 10001 &
   ```

8. Run the ps command so that you can view all your lpd processes.

   Type: **`ps -ax | grep lpd`**

9. Kill all of your lpd processes. Type: **kill -9** <**Process ID**> (this will stop **ALL** printing).

10. Restart the daemon.

    Type: **/usr/lib/lpd**

11. Installation for the system is done. You are prompted to configure any more printers.

    Type **yes** or **no** and press **ENTER**. We also suggest you ping the EcoLAN 3000E to test communications.

7.4.5 Installing & Printing on an DEC ULTRIX 4.3 System

1. Run the Installation script by typing: **nicinst**.

   The script automatically downloads the correct EcoLAN 3000E utilities for your particular system and prompts you for information as needed.

2. What is the node name of the Print Server unit?

   Type the node name entered in /etc/hosts. For example, **printfast** and press **ENTER**.

3. What is the printer name?

   Type the desired printer name and press **ENTER**.

4. Your screen will now display the information you provided to the install script. For example:

```
Node name of the EcoLAN 3000E: printfast
Printer name to be used:<printer_name>
The printer is attached on:PORT 1
```

   You are asked to OK this configuration. Type **yes** or **no** and press **ENTER**.

5. Is this printer PostScript?

   Type **yes** or **no** and press **ENTER**.

6. The script creates a printcap entry for the printer just configured. The screen displays the entry and asks if you want the script to append it to your /etc/printcap file. See below for a sample printcap file. Type **yes** or **no** and press **ENTER**. If you type no, you may perform manual edits.

```
<printer_name> | EcoLAN 3000E printer:\
:lp=/dev/<printer_name>:\
:if=/usr/nic/infilter:\
:sd=/usr/spool/<printer_name>:
```

7. Installation for the system is done. The program prompts you to configure any more printers. Type **yes** or **no** and press **ENTER**. We suggest pinging the EcoLAN 3000E to test communications.

   Like all BSD systems, ULTRIX uses the /etc/printcap file to configure a printer. The interface to the installation script is the same for all BSD systems, however, the printcap entry is different.

   If you use the printcap entry generated automatically by the installation script, this will be transparent to you.

7.4.6 Installing and Printing on the HP/UX System

1. Run the Installation script by typing: **nicinst**.

   The script automatically downloads the correct EcoLAN 3000E utilities for your particular system and prompts you for information as needed.

2. What is the node name of the Print Server unit?

   Type the node name entered in /etc/hosts. For example, **printfast** and press **ENTER**.

3. What is the printer name?

   Type the desired printer name and press **ENTER**.

   Your screen will now display the information you provided to the install script. For example:

   ```
   Node name of the EcoLAN 3000E: printfast
   Printer name to be used:  <printer_name>
   The printer is attached on: PORT 1
   ```

   You are asked to OK this configuration. Type **yes** or **no** and press **ENTER**.

4. The script starts the daemon for the newly configured printer automatically. It also displays the path used should you ever need to restart the daemon. In the following example, the path would be:

   ```
   /usr/nic/lpr_print /dev/nic/printer_name printfast 10001 &
   ```

   This example reflects names supplied to the script earlier.

   When the installation script is complete, you *must* configure the printer and make it known to the lp system. The HP/UX lp system uses the lpadmin maintenance command to configure a printer (there is not a /etc/printcap file). The specific commands to do this are:

   ```
   lpadmin -p printer_name -v /dev/nic/printer_name
   enable printer_name
   accept printer_name
   ```

   You can also use other options for the lpadmin command. See your system documentation for details.

Note: The printer name must be the same as the one you entered during the EcoLAN 3000E installation. HP supplies the **sam** program as an alternative to configure the printer.

When using **sam**, specify everything as if the printer were directly connected to /dev/lprprinter/printer_name.

The software installed with your HP system can satisfy most of your printing needs. HP supplies ASCII-to-PostScript filters and the system will invoke them automatically if you define the content type of the printer as PostScript. The HP/UX lp system also supplies interface scripts that produce PostScript banners. Use the **lpfilter** command to define new filters and content types if necessary. The full power and flexibility of the lp print service is now available to you. The fact that you are printing across the network is completely transparent.

7.4.7 Installing and Printing on a System V (Solaris Ver. 2)/System V Rel. 4 386-based Machine

Installation and setup is exactly the same for System V Solaris and SVR4 i386-based machines. Solution uses a network direct filter called **nicfilter**. The system invokes nicfilter directly from the printer interface file. To load the software, create a /usr/nic directory and tar the TCP/IP diskette to it.

1. Go to the /usr/nic directory by entering the following:

   ```
   cd /usr/nic
   ```

2. Run the Installation script by typing: **nicinst**.

   Once the operating system has been identified, the script downloads the files for your particular system, to the /usr/nic directory, and prompts you for information as needed.

3. Type cd /usr/spool/lp/model/standard/usr/nic/port1_interface

---

Note: Use of this default interface in most cases will suffice for generic or routine printing of most PostScript, PCL, and ASCII files. In order to utilize a printer specific interface other than the default interface script (named standard), you must have a copy of that printer interface edited and installed in the /usr/nic directory.

Next, you will need to edit the printer interface program you created in step 3.

4. Type: cd /usr/nic and using your favorite editor, open and edit the port1_interface file.
5. Search on FILTER=" and insert the following line above or below the # FILTER="${LPCAT} section of the file. Remark out (using the # sign) any other FILTER entries present in this section of the file.

   FILTER="/usr/nic/infilter| /usr/nic/nicfilter printer server name 10001"

Note: The <print server name> must be the same as the one present in the */etc/hosts* file. Optional arguments to be inserted after the 10001 entry and before the trailing " are ${banner}, ${user_name}, ${request_ID}, and ${files}. For further explanation of these and the statement above, refer to the *System 5 Release 4 System Administration Manual*.

---

6. Save the file and close the editor.

   You need to configure the host-side printer using lpadmin.

7. Type the following:

   lpadmin -p <printer name> -v /dev/null -i /usr/nic/port1_interface

---

Note: lpadmin configures the printer name and associates it with a given device and printer interface program. There is no /etc/printcap file involved with this method of configuration.

Next, you need to initialize the printer

8. Type the following commands:

   `accept <printer name> and press` **`ENTER`**`.`
   `enable <printer name> and press` **`ENTER`**`.`

Note: After each entry, lpadmin should provide an acknowledgement of the command invoked.

---

9. Type the command:

   `lp -d <printer name> /etc/hosts, and press` **`ENTER`**`.`

10. Check for output, or type the following:

    `lpstat <printer name> or -t.`

7.4.8 Installing & Printing on a SCO UNIX System

Installation and setup is similar for HP/UX and SCO UNIX systems. The EcoLAN 3000E solution uses a network direct filter called **nicfilter**. The system invokes **nicfilter** directly from the printer interface file.

After completing software download in Section *7.4.1 Loading the Software on page 13* you *must* configure the printer and make it known to the lp system. Follow the steps below:

1. Run the Installation script by typing: **nicinst**.

   The script automatically downloads the correct EcoLAN 3000E utilities for your particular system and prompts you for information as needed.

2. Select your system. Choose one from these options:

   ```
   1) AT&T/SVR4; 386
   2) SCO UNIX System V
   3) None of the above
   ```

   Type 1, 2, or 3 and press **ENTER**.

3. What is the node name of the EcoLAN 3000E?

   Type the name assigned in the /etc/hosts file and press **ENTER**. For example, printfast

4. What is the printer name for this EcoLAN 3000E-linked printer?

   Type a printer name and press **ENTER**.

5. Your screen will now display the information you provided the install script. For example:

   ```
   Node name of the EcoLAN 3000E: printfast
   Printer name to be used: <printer_name>
   The printer is attached on: PORT 1
   ```

   Do you want to accept this configuration? Type **yes** or **no** and press **ENTER**.

6. Is this printer PostScript?

   Type **yes** or **no** and press **ENTER**.

7. The script automatically starts the daemon for the newly configured printer . It also displays the path used should you ever need to restart the daemon. In the preceding example, the path would be:

   ```
   /usr/nic/lpr_print /dev/nic/printer_name printfast
   10001 &
   ```

This example reflects names supplied the script earlier.

When the installation script is complete, you must still configure the printer and make it known to the lp system.

The SCO UNIX lp system uses the lpadmin maintenance command to configure a printer (there is no /etc/printcap file). The specific commands to do this are:

```
lpadmin -p printer_name -v /dev/nic/printer_name
```

Note: Your host may require you to specify the model by using the -i command.

```
enable printer_name
accept printer_name
```

You can also use other options for the lpadmin command. See your system documentation for details. Note that the printer name must be the same as the one you entered during EcoLAN 3000E installation. SCO supplies the **sam** program as an alternative to configure the printer.

When using **sam**, specify everything as if the printer were directly connected to /dev/nic/printer_name.

The software installed with your SCO system can satisfy most of your printing needs. SCO supplies ASCII-to-PostScript filters and the system will invoke them automatically if you define the content type of the printer as PostScript. The SCO UNIX lp system also supplies interface scripts that produce PostScript banners. Use the lpfilter command to define new filters and content types if necessary. The full power and flexibility of the lp print service is now apparent. Your printing across the network is completely transparent.

7.4.9 Installing and Printing on an AIX RISC System/6000

The AIX printing subsystem is driven by the qdaemon program. The qdaemon uses configuration information stored in the /usr/lpd/qconfig file to manage queues and route jobs to the proper devices. This information includes entries for each virtual printer and physical device known to the system.

An AIX virtual printer is simply a high level software view of a data stream, queue, and device that controls how a given job will be processed. A different virtual printer should be defined for each data stream that a real printer supports. For example, you would use different virtual printers for PostScript and PCL jobs even though they are destined for the same physical printer.

Configuring a EcoLAN 3000E printer on an AIX system approximates configuration of a local printer as closely as possible. The only difference is that the physical device associated with your EcoLAN 3000E printer must be a named pipe used by the print daemon to route data to EcoLAN 3000E. The most straightforward way to add a printer to your system is:

1. Run the Install script by typing: **nicinst**.

   The script automatically downloads the correct EcoLAN 3000E utilities for your particular system and prompts you for information as needed.

2. What is the node name of the Print Server unit?

   Type the node name entered in /etc/hosts, for example: **printfast** and press **ENTER**.

3. What is the printer name?

   Type the desired printer name and press **ENTER**.

4. Your screen will now display the information you provided to the install script. For example:

   ```
   Node name of the EcoLAN 3000E: printfast
   Printer name to be used: <printer_name>
   The printer is attached on: PORT 1
   ```

   You are asked to OK this configuration. Type **yes** or **no** and press **ENTER**.

5. Configure a virtual printer using printer_name as the physical device, where printer_name is the same printer name chosen during install.
6. Shut down the qdaemon using the command

   `stopsrc -s qdaemon`
7. Edit /usr/lpd/qconfig to change the special file for device printer_name from /dev/printer_name to /dev/nic/printer_name.
8. Restart the daemon with:

   `startsrc -s daemon."`

The installation script then will create the named pipe and starts the supplied print daemon using the printer name and EcoLAN 3000E information you supplied. Since the AIX System Management Interface Tool (SMIT) will not accept a named pipe as a printer device, the installation script also creates a null character device in /dev/printer_name.

7.4.9.1Virtual Printer Commands

Virtual printers can be added either through SMIT or through the **mkvirprt** command, entering the device name printer_name for configuration purposes. During this process you also select a particular printer type for the new printer, which inherits the set of predefined attributes for that printer type. In most cases, this set of attributes will be sufficient, but it can be changed either through SMIT or by using the **chvirprt** command. If you need more extensive changes on your printer, see the *AIX RISC System/6000* documentation for assistance. After the virtual printer has been added, there will be a stanza in /usr/lpd/qconfig for device printer_name that looks like the following:

```
printer_name:
file=/dev/printer_name
backend=/usr/lpd/piobe
```

Edit /usr/qconfig and change

```
file=/dev/printer_name to file=/dev/nic/printer_name.
```

Output spooled on the virtual printer as defined above, will now be sent to the named pipe and routed to EcoLAN 3000E. Before you edit the files above, be sure that the following deamon is running:

```
/usr/nic/lpr_print /dev/nic/printer_name printfast 10001 &
```

7.4.9.2AIX Print Commands

The AIX lp command works slightly differently than the lp command for other System V Release 4 systems. The following lp commands can be used to print files:

```
lp -d <queue_name> <filename> or
lp -d <queue_name>:<device_name> <file_name>
```

8

Additional Printing & Configuration Options

8.1 EcoLAN 3000E Setup Using the Printer Front Panel

The printer front panel may be used to set a number of 3000E parameters including:

Turning On or Off the network protocols.

Setting the Novell (IPX) frame type.

Enabling or Disabling DHCP.

Setting the IP Address, Subnet Mask, and Default Gateway.

The following procedure explains how to set the IP address, Subnet Mask, Default Gateway and disable unused protocols:

Note: Setting the IP address with the front panel automatically sets IP Persistence to Permanent, that is, the IP address is maintained when the printer is turned off and on.

---

1. Press the **MODE** key.
2. If the first line of the LED panel does not already display `INTERFACE`, press the + or – key until `INTERFACE` is displayed.
3. If the line below `INTERFACE` does not already display `OPTION` (`OPTION 2` on the FS-7000), press the **ENTER** key, then + or – until `OPTION` is displayed and press **ENTER**.
4. Press the > key to enter the Option submenu. (Note: Not all firmware versions support front panel setup. If there is no Option submenu or not all choices are available on the submenu, please check the firmware version requirements listed in the following section.)
5. Press + or – until `TCP/IP` is displayed.
6. Press the > key to enter the TCP/IP submenu (the TCP/IP submenu is accessible only when the TCP/IP protocol is On).
7. Press + or – until `IP Address` is displayed.

8. Press the **ENTER** key and a cursor will appear under the last digit of the IP address.
9. Press the < or > key to move the cursor to the desired digit to change.
10. Press + or – to change the value of a digit.
11. Once all digits are set to the desired values, press the **ENTER** key to accept the new address.
12. Repeat steps 7 - 11 for `Subnet Mask` and `Default Gateway` (the router's IP address). If unsure of the correct Subnet mask and the first number in the 3000E IP address is from 192 to 254, then use 255.255.255.0 as the Subnet mask.
13. When all settings for IP Address, Subnet Mask, and Default Gateway are completed, press the < key to return to the Option submenu (`TCP/IP` is displayed).

Note: It is recommended to turn off protocols that are not in use, however, be aware that the management and print capabilities which depend upon that protocol will no longer function. For example, if the Novell protocol (IPX) is turned off, then NetWare printing, management with the MAP utility, and IPX Peer to Peer printing will all be disabled.

---

14. *Optional:* Press + or – to display the protocol to turn off, e.g. `EtherTalk`.
15. *Optional:* Press the **ENTER** key and a `?` will appear next to `On.`
16. *Optional:* Press + or – to toggle the value to `Off` and press **ENTER** to accept the new value.
17. When completed, press the **MODE** key to exit the menu system.
18. Press the **STATUS** key to print a status page and verify the new settings.

8.1.1 Firmware Requirements for Front Panel Setup

Following are the firmware levels required for front panel setup capability. The firmware level of the printer is listed as Software version on the printer status page.

FS/LS-800 requires version 38.01 or later

FS/LS-1700+ requires version 40.00 or later

FS/LS-3700+ requires version 32.02 or later

FS/LS-7000 requires version 25.07 or later

FS/LS-5800C, 6700, 7000+, 9000 all versions

8.2 Dynamic Host Configuration Protocol (DHCP)

Important: EcoLAN 3000E IP address assignment with DHCP will not work if the 3000E has an existing IP address and IP persistence is Permanent.

DHCP provides a mechanism for delivering IP configuration parameters, including IP address, subnet mask, default gateway, host name, WINS server addresses, etc. to devices (hosts) on an IP network. DHCP alleviates the administrative burden of managing individual IP addresses.

A DHCP server processes 3000E DHCP Discovery broadcasts and returns an IP address to the 3000E. The DHCP server may be set up to grant an IP address for a limited time (a temporary lease) or for an unlimited time (an unlimited lease), or it may be configured with a permanent address reservation for each 3000E.

In a WINS environment, the DHCP server will generally be set up to grant the 3000E a temporary lease.

Important: In a non-WINS environment, it is highly recommended to set up the DHCP server to grant the 3000E an unlimited lease or permanent address reservation.

8.2.1 Unlimited Lease or Address Reservation in Windows NT 4.0 (non-WINS DHCP setup)

In Windows NT, lease duration is set for a particular scope, or group of addresses. Thus, lease duration should be set to Unlimited for the scope to which the 3000E belongs. If this is not desired, then the 3000E should be defined as a Reserved Client.

A Reserved Client may be added with the Windows NT DHCP Manager by selecting **Scope** and then **Add Reservations**. Enter the hardware address of the 3000E (see the 3000E Network Status Page) and the IP address and other IP parameters.

8.2.2 IP Address Persistence

The 3000E defaults to an IP persistence of Permanent; that is, once an IP address is entered, it is retained when the printer is turned off and on. This is consistent with non-DHCP maintained IP addresses, however, for a DHCP environment with WINS the permanent IP persistence is generally not desired. ***Therefore, when an IP address is accepted via DHCP, the 3000E IP persistence is automatically changed from Permanent to Temporary.***

In a DHCP environment without WINS, either permanent or temporary IP persistence may be used. Permanent allows the 3000E to use its IP address even if the DHCP server is down while the 3000E is powered up. To view or change the 3000E IP persistence setting, see *3000E Configuration with HTML* in 8.3 WINS Configuration.

If the IP persistence is Temporary and the DHCP server assigns the 3000E a temporary lease, the 3000E will properly attempt to renew this lease each time it is powered up. However, the 3000E may obtain a new IP address from the DHCP server. If the 3000E printing configuration is dependent upon IP address, then printing will be disabled when the IP address changes. For this reason, assigning a temporary lease to a printer in a non-WINS environment is undesirable.

WARNING: If the 3000E IP persistence is set to Permanent and the DHCP server assigns a temporary lease, the 3000E IP address may be assigned to another device once the lease expires, resulting in two devices with the same IP address. Changing or confirming the IP address with the printer front panel (by pressing Enter twice while the IP address is displayed) automatically sets the IP persistence to Permanent.

8.2.3 Disabling DHCP

If IP address assignment with DHCP is not desired, it may be disabled using the *3000E Configuration with HTML* in the next section and unchecking the Enable DHCP check box. It may also be disabled with the printer front panel or the MAP utility.

8.3 Windows Internet Naming Service (WINS)

WINS provides a mechanism for mapping NetBIOS (Windows) names to IP addresses. Implementation of WINS enables defining a printing configuration which references the printer by its name rather than by its IP address. Thus, even if the printer IP address is changed via DHCP, the printing configuration will still be valid and printing will continue uninterrupted.

Another advantage of WINS is that a new printer may replace an old printer simply by giving the new printer the same NetBIOS name as the old printer or by entering the new printer's NetBIOS name in the Windows printing configuration.

8.3.1 WINS Registration and Naming

The 3000E must be given the address of the primary WINS server where it will register its NetBIOS name. It may optionally be given the address of a secondary WINS server. The 3000E obtains its NetBIOS name and addresses of the WINS servers from the DHCP server, or, if not obtained from the DHCP server, they must be manually entered on the 3000E HTML configuration pages. If the 3000E NetBIOS name is not obtained by either of these methods, then the 3000E will register its default name of KYO_<serial #>, e.g. KYO_990442.

Refer to your DHCP server documentation for the proper procedures to provide the 3000E with its NetBIOS name and/or WINS server addresses, or refer to the following procedure to manually configure these values.

8.3.2 3000E Configuration with HTML

1. Connect to the 3000E with a web browser by entering the IP address/tcpip as the URL, e.g. http://206.129.6.54/tcpip
2. For DHCP with WINS, IP persistence should be Temporary; the check box next to **IP Address in NVRAM** should be unchecked. If Permanent IP persistence is desired, this box should be checked.

WARNING: If the 3000E IP persistence is set to Permanent and the DHCP server assigns a temporary lease, the 3000E IP address may be assigned to another device once the lease expires, resulting in two devices with the same IP address. Changing or confirming the IP address with the printer front panel (by pressing Enter twice while the IP address is displayed) automatically sets the IP persistence to Permanent.

---

3. If the WINS Server addresses will not be supplied via DHCP, enter the address of the **Primary NetBIOS Name Server** and optionally the address of a **Secondary NetBIOS Name Server**.
4. If the printer NetBIOS name will not be supplied via DHCP, enter a **NetBIOS Name** for the 3000E or make no entry to use the default name of KYO_<serial #>.
5. Type the password, **sysadm**, in the appropriate box and click **Accept Settings**. After a few seconds the screen should report that the update was successful.
6. Click on the **Home** link, then select **3000E Configuration**.
7. Select **Reset** in the System column and click on **Reset Unit**.

Once all steps of the HTML configuration are completed and the 3000E has successfully registered with a WINS server, the word **Registered** will appear next to either Primary or Secondary Server Registration on the TCP/IP configuration page.

The WINS registration is for a limited period, so the 3000E occasionally attempts to refresh its WINS registration. Depending upon which WINS Server is active at refresh, the indication of the registered WINS server may change from time to time.

8.4 Telnet

This section describes the interactive setup capability accessible through the *Telnet* utility on any TCP/IP platform, and is equally applicable to Windows, UNIX, and other TCP/IP environments. *Telnet* uses the existing 3000E IP address to establish a connection. Therefore, to open a *Telnet* session, the 3000E must already have a valid IP address assigned.

The *Telnet* utility uses the standard remote terminal protocol to configure the IP address, lpd printers, and other parameters on your system. Use the following guidelines to run *Telnet*. The same functionality is provided with the HTML pages accessed by MAP or a Web Browser as described ion Chapter 3.

General *Telnet* Usage

- *Telnet* selections are made from menus by toggling between choices or by selecting/deselecting or enabling/disabling an item.
- To return to a previous menu, press **Enter** without making a selection.
- If you do not make a menu selection for 2 minutes, you get a "**Two Minute Warning**" that within 2 more minutes your *Telnet* session will end. This ensures that one user does not leave a session idle for too long.

8.4.1 Making the Connection

1. At the prompt, type:

   ```
   telnet <network interface card IP address>
   ```

2. When *login:* appears, type **guest** if you are only interested in browsing the menus or **sysadm** if you want to change the configuration. Press **ENTER**. When *password:* appears, again type **guest** or **sysadm** and press **ENTER**.

3. The main menu is displayed. This utility lets you change the IP Parameters, lpd printers, protocols, restore to factory defaults, and change password. Press the number for the parameter you wish to check or change and press **ENTER**.

   The Configuration Utility
   Unit Serial no. 221963 V4.10

   Main Menu

   1. IP Parameters
   2. LPD Printers
   3. Protocols
   4. Restore Factory Defaults
   5. Change Password
   E. Exit

4. To end your *Telnet* session, type **E** at the Main Menu. If you have made any changes you are prompted to either *Save Changes and Exit* or *Exit Without Saving Changes*. Choose your option and press **ENTER**.

Note: Press ? to access the *Telnet* help utility.

8.4.2 Configure IP Parameters

Although the EcoLAN 3000E must have an IP address before a *Telnet* Connection can be made, you can use the utility to change the address or the other IP parameters. The EcoLAN 3000E will automatically initiate a soft reset when the IP address change is sensed. This will cause the *Telnet* connection to be broken. It is advisable to make all other desired changes before changing the IP address.

Note: Changing the IP address with *Telnet* causes IP persistence to be automatically set to Permanent. See the DHCP section for more information on IP persistence.

1. At the Main Menu, type **1** and press **ENTER** to bring up the IP Parameters menu (shown on the next page).
2. Type **1** again and press **ENTER**. The IP Address submenu will appear:

The Configuration Utility Unit Serial no. 221963	
1. IP Address	199.92.187.37
2. Subnet Mask	255.255.255.0
3. Default Gateway	199.92.187.254

3. Enter a new **IP Address** and press **ENTER**. Repeat the previous steps to change **Subnet Mask** and **Default Gateways**.
4. Enter **4** to change the base port number.

Note: The base port number is one less than the actual TCP/IP port number used by the printer. For example, to set the port number to 10001, enter10000.

8.4.3 Select Printer Languages

Selection **2** in the Main Menu allows you to designate which emulations (printer interpreter languages) the printer supports. This is to allow the resident lpd to modify files intended for other emulations so that they may be printed. The menu also allows you to enable or disable banners attached to lpd handled jobs.

The emulation choices are Printer Control Language (PCL), PostScript (PS), ASCII (simple text) and Other (any print job not recognized as PCL, PS, or ASCII). The file modifications and conditions are:

Print Server Setup	Job Detected to be	Action
PCL, (PostScript)	ASCII	<CR> changed to <CR><LF>
PostScript	PCL, Other	PostScript header added
not PostScript	PostScript	Job discarded
PostScript	ASCII	PostScript header added, <CR> changed to <CR><LF>
PCL, PS, ASCII	any	no action

1. To access the LPD Printers menu, type **2** and press **ENTER**. For a unit at factory default, the menu shown below will appear.

LPD Printers	
1. Printer 1	PCL PS OTHER
2. Banners	DISABLED

2. To change the set of emulations, type **1** and press **ENTER**. The options shown below will appear.

Printer 1	PCL PS OTHER
1. PCL	
2. PS	
3. ASCII	
4. OTHER	

3. To delete an emulation, select the number opposite the language listed. For example, type **1** and press **ENTER** to delete PCL. Typing **1** again will again select PCL.
4. From the LPD Printers menu, press **2** to toggle Banners between Enabled/Disabled.

8.4.4 Enable/Disable Network Protocols

To enable network protocols, at the Main menu type **3** and press **ENTER**.

You are given the choice of disabling either **NetWare** or **AppleTalk** since both network OS's are enabled by default. For example, to disable Appletalk, type **2** and press **ENTER**.

8.4.5 Restore Factory Defaults

When it is necessary to restore factory defaults on your print server, choose **4** on the Main Menu and press **ENTER**. All NVRAM stored parameters will be returned to their factory default values. The factory default values will not take effect until the Telnet program is exited, or the unit is powered cycled.

8.4.6 Change Password

When you want to establish a new password, enter **5** from the Main menu. Type up to eight characters after the **New Password** query and press **ENTER**. Retype the same characters at the **Retype New Password** query and press **ENTER**. Use the **Save Changes and Exit** option. Once you have established your password using Change Password, the password **sysadm** will be rejected.

Note: There is a single maintenance access password, **sysadm**, to the EcoLAN 3000E. This password is used for both Telnet and HTML maintenance programs. This password may be changed from Telnet or from HTML (accessed either via MAP or Web Browser utility.

8.4.7 Exit *Telnet*

Use the following procedures to exit *Telnet*:

1. To end your *Telnet* session, type **E** at the main menu. If you have made any changes, the following menu will appear:

The Configuration Utility Unit Serial no. 221963
Exit 1. Save Changes and Exit 2. Save Changes and Reset 3. Exit Without Saving Changes

2. Choose your option and press **ENTER**. For example, type **2** and press **ENTER**. The program will save your changes and reset the print server so that the changes will take effect.

8.5 FTP Printing

FTP printing allows users several ways to print files through the internet directly from their favorite IP browser or other FTP client.

Important:The user ***must*** be aware of the type of file they are sending to the printer.

8.5.1 FTP Printing Using Netscape

Connect to the port you wish to send the print job to on your print server. For example, to print to the EcoLAN 3000E from Netscape (must be Netscape 2.0 or greater), do the following:

1. Type: **ftp://port1@<destination server IP address>**
2. Select **File**.
3. Select **Upload File**.

Note: FTP printing does ***not*** support selecting multiple file names.

The selected file is now sent to the printer.

8.5.2 ASCII to PostScript (A2PS) Method

Connect to the port you wish to send the text-based files to a PostScript printer on your print server. For example, to print to A2PS1(ascii to postscript) your EcoLAN 3000E from Netscape (must be Netscape 2.0 or greater), do the following:

1. Type: **ftp://a2ps*1*@<destination server IP address>**
2. Select **File**.
3. Select **Upload File**.

The selected file is now sent to the printer.

8.5.3 Drag and Drop Method

You can also use the "drag and drop" method of printing files from Netscape. For example, to print a file on your EcoLAN 3000E from Netscape (must be Netscape 2.0 or greater), do the following:

1. Type: **ftp://port*1*@<destination server IP address>**
2. Click and hold on the file that is on your system and drag it to your IP browser's window.
3. Click on **OK** to upload file.

The selected file is now sent to the printer.

Note: FTP printing does ***not*** support selecting multiple file names.

Only **one** person can be logged on to a port at any particular time.

8.5.4 FTP Client

To print from a FTP Client, do the following:

1. Type**: ftp <destination server ID>**
2. Type: **port*1*** (login using username of port number)
3. Type: **put <filename**>

The selected file is now sent to the printer.

9

Operation and Troubleshooting

This chapter describes normal operation of the EcoLAN 3000E in the printer, and also provides information on how to troubleshoot any problems you might have with the EcoLAN 3000E.

9.1 LED Status Indicator

The EcoLAN 3000E has two LED status indicators: amber and green. The amber LED generally indicates job activity; it flashes when a print job is being communicated to the EcoLAN 3000E; it is off when no activity is occurring.

The green LED indicates the operating condition of the EcoLAN 3000E when it is powered on during normal operation. The following table provides the conditions that this LED may indicate.

LED Patterns	And the printer is...	THEN THE EcoLAN 3000E...	Operating Condition
Green LED is ON solid.	First powered on. Awaiting print jobs.	Is performing self-tests. Is functioning properly.	Normal Normal
Green LED - blinks 3 times and stays on.	Finished with self-tests.	Prints out status report	Normal
Green LED blinks rapidly.	Performing self-tests.	Detects bad RAM chip.	Error
Green LED blinks rapidly 4 times then pauses.	Performing self-tests.	Failed the Ethernet hardware self-test. Check the network.	Error

Amber LED blinks short for 10 seconds. Amber LED goes off and the Green LED blinks continuously.	Performing flash memory self-tests	Did not pass the checksum test. Unit automatically goes into download mode and awaits flash update.	Error
Green LED blinks slowly.	Awaiting print jobs sometime after power-on completes.	Some printer interface error.	Error
Green LED blinks rapidly.	Awaiting print jobs.	Has lost its NetWare connection to file server.	Error
Green LED alternately blinks with amber indicator.	Finished with power-on sequence.	Has been reset to factory defaults. Power off and move jumper OP2 to CUST position.	Error

9.2 EcoLAN 3000E Network Status Page

The status page may be printed by pressing the Status key on the printer front panel. This will print a printer status page followed by the EcoLAN 3000E Network status page. Depending upon the size of the network and other factors such as which protocols are enabled on the 3000E, it may take from 30 seconds to several minutes before the status page is printed. The status page may be set to be printed automatically at power-up using MAP or a web browser.

It is strongly recommended that you review and save the 3000E status page after installation or any time the setup has been changed.

EcoLAN 3000E

Network Status Page

3000E ID Information

Firmware ver:	05.10
Serial Number:	991014
Hardware Address:	00:40:af:78:f9:30

Network Details

Connector:	10BaseT
Topology:	Ethernet
Speed:	10 Megabits/Second

TCP/IP Network Information

Protocol Status: Enabled

IP Address:	Not Configured	Frame Type:	Ethernet II
Subnet Mask:	255.0.0.0	DHCP Status:	Enabled
Default Gateway:	0.0.0.0	IP Persistence:	Permanent
Port Number:	9100		

Windows Peer to Peer Information

Protocol Status: Enabled

Printer Name:	KYO_991014	Frame Type:	Novell 802.3
		Network Number:	00000044 h

AppleTalk Network Information

Protocol Status: Enabled

Printer Name:	KYO_991014	Frame Type:	802.2 SNAP on 802.3
	Preferred Zone:	Default Zone	

Novell Network Information

Protocol Status: Enabled

Print Server Name:	KYO_991014	Frame Type:	Novell 802.3
Password:	Not Defined	Network Number:	00000044 h
NDS Tree:	Not Defined	Connection Number:	5
NDS Context:	Directory Services Context Not Defined	Queue Scan Rate:	1 second
Bindery Emulation:	Enabled		
Preferred File Server:	Not Defined		

NetWare Connection Status

File Server:	55SX				
Printer Name:	KYO7000				
Queue Name:	ECOLAN3000	Priority:	1	Status:	Attached

9.3 Resetting the EcoLAN 3000E to Factory Defaults

You can cause the EcoLAN 3000E to restore all parameters to factory default values, so the EcoLAN 3000E appears just as it came from the factory. You may choose to do this when the EcoLAN 3000E is moved to a new location where the environment (AppleTalk network zones, NetWare file servers, IP subnets, and so on) is different.

This process is called **Reset to Factory**. It can be done with the standard Telnet or HTML (accessed via MAP or a Web Browser) utilities. However, if network access is not possible, the 3000E may be reset to factory defaults with a jumper setting. See Appendix A for jumper instructions.

Note: Resetting to factory default means that the print server loses all data such as names and IP addresses. It does not lose its serial number or MAC (Ethernet hardware) address.

9.4 How to Diagnose Problems

Use the following list to determine the cause of printing problems:

1. Verify that the printer is functioning properly.
   - Is the printer printing? Make sure the printer is operating properly. Press the Status key on the front panel to print a status page.
   - Is the printer on-line? Verify that the printer is on-line or else nothing will print.
   - Does the control panel display an error message? Review the printer documentation for an explanation of the error messages.
   - Did you get a EcoLAN 3000E status page? On power-up, the EcoLAN 3000E sends a status page which may contain information that can be useful for troubleshooting. Keep the status page available until a problem is resolved.

Note: The EcoLAN power-up status page may be disabled with the management utilities.

2. Check the EcoLAN 3000E's LED status indicator to ensure that there is no error condition. See *9.1 LED Status Indicator*, for more information.
3. Check the status report to see what protocols are enabled and active. See the appropriate chapter to confirm that you have installed and configured your network protocol correctly for the EcoLAN 3000E. See *9.2 EcoLAN 3000E Network Status Page*, for an example of the status report.
4. If you added, changed, or removed any new hardware on the network, verify that it was installed correctly.
5. If you added any new software applications, make sure the program is compatible and installed correctly on the network. See your network protocol documentation to confirm.
6. Determine if other users can print. If they can't and they are all on the same NOS, go to the troubleshooting section for that NOS.

When you have determined the nature of the problem, use the checklists in the next section.

9.5 Troubleshooting Network Hardware Connections

If you are using an old 10BaseT concentrator hub that does not support the link signal, use Manual Ethernet Port selection instead of the factory default of Automatic Ethernet Port selection. Refer to *Appendix A*.

9.6 Troubleshooting NetWare

It is recommended you use MAP to get the NetWare setup and parameter values. If you have not resolved the problem after running MAP, go through the checklists in this section.

9.6.1 NetWare Checklist

- Is the print server name entered correctly? The factory-default name is *KYO_serial number*. The serial number is located on the card.
- Did you assign print queues to the printer? It is recommended you assign each print queue to only one EcoLAN 3000E-connected printer. If print queues are assigned to other network printers, the print jobs may be going to another network printer.
- Did you assign the printer to the type **Remote Other /Unknown**?

If the PCONSOLE settings are correct, the connection between the printer and network may have been broken. Turn the printer off and, using PCONSOLE, wait for the status message Not Connected. Turn the printer on and the status should change to Waiting for Job.

9.6.2 File Server Checklist

- Is there enough disk space on the file server and is it running?
- Is the correct file server associated with the printer? Use PCONSOLE to check this.
- Did you have the proper rights to configure the printer?
- Are the File Server and the Print Server communicating? Run NetWare's COMCHECK utility from any network workstation to check this.
- Are there enough user positions on the File Server? The Print Server function logs on as a user.

9.6.3 Workstation Checklist

- Is the network loaded onto the workstation? See the NetWare documentation.
- Is the application set up to print to the printer? For instance, are you using the correct driver?
- Is the workstation connected to the correct print queue? Print a file and verify that the file goes to the queue.
- Are the print queues assigned to the EcoLAN 3000E-connected printer also assigned to another network printer? If they are, the print jobs may be going to that printer.
- From PCONSOLE, enter a sample print job directly into an assigned queue. Does the job become Active? Is job printed?
- Is AUTO ENDCAP enabled? Auto Endcap lets you send data to a network printer. Use PRINTCON to check. If not, enable it.

9.6.4 EcoLAN 3000E Configuration Checklist

If all your hardware connections are correct, check the following:

- Use MAP to check the status of the print server. The Report Print Server Status screen shows the status for the selected network interface card. This report includes a status of file servers and queues assigned to a printer along with a description of any problems.
- The printer may not be assigned to the correct print queues. Use PCONSOLE to direct print jobs to the correct queues, then check to see if the print job is in the queue.
- If devices were added or changed, use PCONSOLE to make sure you configured the new devices correctly.
- Make sure the EcoLAN 3000E's name has been entered correctly. If you changed the name in MAP, you must also change the name in PCONSOLE before you can print.
- Use PCONSOLE to check the Printer Status. Make sure it is not stopped or paused.
- You cannot use PCONSOLE Version 1.0 to configure the network interface card. Contact Novell for an upgrade.

9.6.5 Print Server/File Server/Printer Checklist

Check the following to see if:

- The EcoLAN 3000E can not log into the file server, or cannot service jobs from a File Server.
- The Print Server name is listed on that File Server, or cannot service jobs from a File Server.
- The password assigned to the EcoLAN 3000E through PCONSOLE matches the password assigned through MAP. Use MAP to update the password stored in the network Print Server's memory.
- The print job is in the print queue and waiting to be printed. Use PCONSOLE to check if the print jobs are being sent to the printer.

9.6.6 Workstation to EcoLAN 3000E Connection Checklist

To make sure the workstation is communicating with the EcoLAN 3000E, check the following:

- Print a file from the workstation and make sure the print job gets to the print queue using PCONSOLE. If the print job does get to the queue, the problem is not with the workstation/print server connection.
- Use CAPTURE to send data to the printer from a workstation software application. See your NetWare print server manual for information.
- Make sure another printer is not taking the print jobs from the queues BEFORE the EcoLAN 3000E can service the job. To do this, disable the other printer until you can verify the EcoLAN 3000E-connected printer setup.

9.6.7 EcoLAN 3000E Loses Its File Server Connection

If the EcoLAN 3000E loses its connection to the file server, it can take approximately 5 to 10 minutes to reconnect. If the connection is not made after a reasonable amount of time, check the error conditions to troubleshoot the problem.

9.6.8 Unable to Print from a Different Context

The EcoLAN 3000E does not support printing from a context different from the context you are installed on. If you want to do this, you must create an alias queue. See your NetWare Manual for more information.

9.7 Troubleshooting AppleTalk

- Is the Macintosh computer connected to the network through Ethernet, and, has the Macintosh AppleTalk driver been selected? Go to the Control Panel, then go to Networks to check.
- Did you select the correct EcoLAN 3000E and correct zone?
- Is AppleTalk enabled on the Macintosh? Use Chooser to check this.
- If you are on a network with multiple zones, is the zone correct?
- Did you select the correct printer driver in Chooser? You must first select the printer icon and then select the printer name.
- If you renamed the printer in the AppleTalk KYOManage for Macintosh Program, did you reselect the printer under its new name?
- If you placed the printer in a new zone, did you reselect the zone?
- Are other printers with similar names in Chooser? Make sure you chose the EcoLAN 3000E-connected printer.

Appendix A

Jumper Settings

The EcoLAN 3000E will automatically configure the network configuration without the need to access internal jumpers. However, in some cases it may be necessary to use a jumper to reset the 3000E back to a factory default condition.

HANDLING PRECAUTIONS

FOR STATIC SENSITIVE DEVICES

The EcoLAN 3000E is normally contained within the printer which acts to protect sensitive components from damage due to electrostatic discharge (ESD) during normal operation. When performing installation procedures, however, take proper static control precautions to prevent damage to equipment.

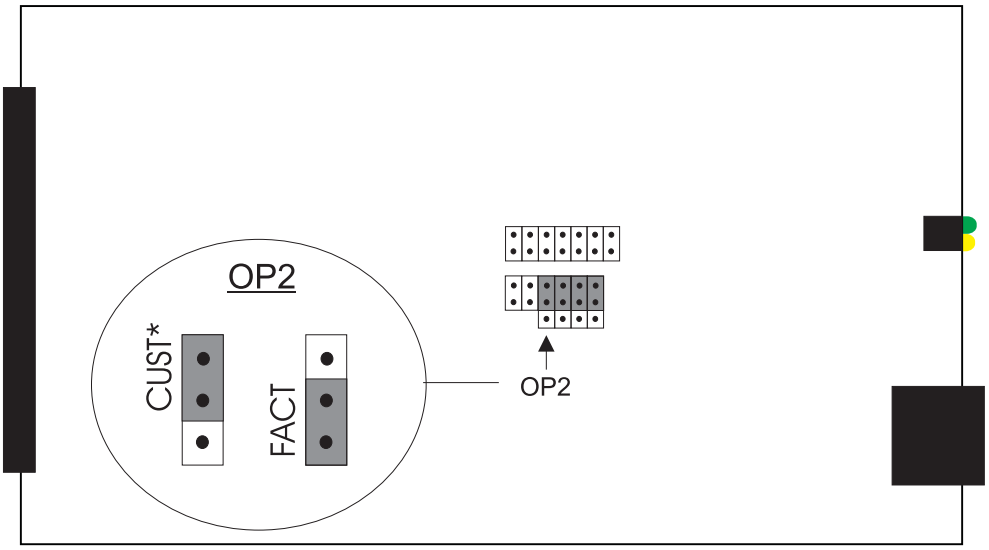
WARNING: Make sure you do not have the printer plugged into a wall outlet. If it is, unplug the power cord BEFORE you open the unit. Remove the 3000E from the printer (refer to Chapter 2 installation instructions if necessary).

A.1 Reset the EcoLAN 3000E to Factory Default Settings

When the management utilities cannot be used to perform a reset to factory defaults, the EcoLAN 3000E may be restored to factory default conditions with a jumper (OP2). The function of OP2 is to reconfigure NVRAM. This is done when a unit is moved from one site to another and should be restored to as *as-new* condition.

Use the diagram and instructions on the following page to reset the 3000E to factory defaults with OP2.

EcoLAN 3000E Jumper Diagram



1. Power off the printer and remove the EcoLAN 3000E from the printer. The removal process is the reverse of the installation process in Chapter 2.
2. Locate the OP2 Jumper. See jumper location diagram above.
3. Move this jumper to the **FACT** position, so that the jumper covers the center pin and the pin nearest the FACT jumper designator.
4. Install the EcoLAN 3000E as shown in Chapter 2. Do not connect the printer to the network.
5. Power on the printer. The EcoLAN 3000E performs its diagnostic self tests. The green LED blinks 3 times then goes into an alternating green/amber light sequence. When you see this pattern, power off the printer.
6. Remove the EcoLAN 3000E from the printer.
7. Move the OP2 jumper back to its **CUST** position, so that the jumper covers the center pin and the pin nearest the CUST designation.
8. Reinstall the EcoLAN 3000E according to Chapter 2.

Appendix B

Specifications

B.1 EcoLAN 3000E

The following tables provide general specifications for the EcoLAN 3000E.

Table 2: EcoLAN 3000E General Specifications

Size:	152.4 mm length x 80 mm height
Weight:	8 ounces
Environment:	0 to 50 degrees Centigrade, 5% to 80% humidity
Controls and Indicators:	One green LED and one amber LED
Configuration:	Stored in non-volatile memory
Connectors:	Ethernet: 8-wire RJ45 10 or 100baseT